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STORAGE

ASTRONOMICAL OBSERVATIONS

MADE AT THE

OBSERVATORY OF CAMBRIDGE

BY

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PREFACE.

The Meridian Observations contained in this Volume embrace for the most part the same objects, and were made and reduced in all essential respects in the same manner, as those of preceding years. The extra-meridional observations consist principally of determinations of Geocentric places of Encke's Comet, by means of comparisons with the known or subsequently ascertained places of neighbouring stars. Some of these observations were made with a newly erected large Equatoreal, which, together with every requisite for its efficient working, has been presented to the Cambridge Observatory by His Grace the Duke of Northumberland, the present High Steward of the University. The performance of this powerful instrument will be very inadequately judged of by the observations contained in this Volume, which were made before the apparatus for managing it was completed.

The observations have all been reduced with strict attention to accuracy, and all the calculations have been examined. The reductions of the meridian observations were calculated and examined by my two assistants, and afterwards underwent my revision: all other calculations were either made or examined by myself. It has been my object to record the observations and exhibit the methods of reduction in such a manner, that by the aid of the notices in the body of the work and the Introduction, any of the calculations may be readily verified.

In consequence of the details required by the additional Instrument, and of calculations made for a new determination of the latitude of the Observatory, with other miscellaneous matter, the Introduction has been extended to an unusual length.

The valuable Appendix to this Volume, entitled 'The First Cambridge Catalogue,' was printed for the Memoirs of the Royal Astronomical Society, and at the request of Mr Airy, additional copies were kindly allowed by the Society to be struck off for the purpose of being bound up with the Cambridge Observations.

The publication of the Volume has been in some measure retarded in consequence of its being necessary to carry on to a great extent the reduction of the observations of 1839, before the places of the stars observed with Encke's Comet could be assigned. Independently of this circumstance the great mass of calculation which it contains will sufficiently account for its late appearance.

J. CHALLIS.

OBSERVATORY, CAMBRIDGE,
May 2, 1840.

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ERRATA.

IN THE VOLUME FOR 1836.

Page (97). Second column, *for* ⚹ N.P.D. 60°. 28′ *read* ⚹ N.P.D. 60°. 26′; and in the Catalogue, p. (99) *read* ⚹ N.P.D. 60°. 26′.

IN THE VOLUME FOR 1837.

p. (54). In the observation of 30 Scorpii June 30, the counting was 1^{s} in *excess* instead of in *defect*, and the seconds should therefore be all diminished by 2^{s}. In pages (126) and (131) the mean R.A. of this star should be altered to 17 . 6 . 12,84.

p. (127). α Aquilæ Oct. 27, *for* 59,97 *read* 49,97.

p. (130). In the mean R.A. of λ Leonis, *for* 7 *read* 9.

p. (200). July 8, *for* δ Draconis *read* η Draconis. This error has led to several others requiring to be corrected as follows. In the Introduction, p. lix, first column, *for* δ Draconis *read* η Draconis. In page 9, insert in the direct observations of η Draconis, July 8 ... 28°. 6′. 56″,11, and in the reflexion observations, July 8 ... 28°. 6′. 53″,47. In pages 12 and 16, dele the observations of δ Draconis. In p. 16 change the number of observations of η Draconis to 5, and in the mean N.P.D. Jan. 1, *for* 55″,39 and 53″,89 *read* 55″,47 and 53″,92.

p. 16. In the first column, after the second α^{2} Libræ insert R.

pp. 16 and 17. The mean N.P.D. of all the SP. observations should be diminished by 0″,30, the correction 0″,15 for error of colatitude having been applied with a wrong sign.

IN THE PRESENT VOLUME.

p. 6. The star observed on Jan. 22 was not Ceres.

p. 10. Feb. 12, *for* θ^{1} Orionis *read* θ^{2} Orionis. The same correction is required in p. 12 Feb. 14, and in p. 14 Feb. 28.

p. 47. June 7, in the seconds of apparent R.A. of Moon's 2 L, *for* 35,41 *read* 35,52, the correction for defect of illumination not having been applied.

The examination of the *minutes* of the transit observations of the Sun, Moon, and Planets, was overlooked till the 'Transits as observed' had been printed off. The following errors (which are all corrected in the Catalogues of concluded R.A.) were subsequently discovered.

The minutes of wire VII, of concluded transit, and of apparent R.A. in the observations of the Sun March 27 and 30, of Venus March 28, of Juno June 21, of Jupiter March 20, April 7, and April 16, of Saturn May 3, and of Uranus Aug. 13, should all be *diminished* 1^{m}; and in those of the Sun May 12, of Mercury Aug. 3, and of Juno June 15, *increased* 1^{m}. In the observation of Venus April 11, the minutes should be *increased* 5^{m}, in that of Jupiter June 12 (excepting the minutes of wire VII to 2 L), *diminished* 1^{m}. The apparent R.A. of Jupiter March 16 should be *diminished* 1^{m}. The concluded transit and apparent R.A. of Ceres Feb. 22, should be *diminished* 1^{m}, and those of Saturn Feb. 13 and Uranus Dec. 3, *increased* 1^{m}.

p. 120. The observation of *g* Arietis Jan. 5, was most probably taken on the micrometer wire as left in the preceding observation of the Moon. The last micrometer reading (recorded in the note-book as taken at the comb, but not made use of,) was 10^{r},950. The N.P.D. of *g* Arietis should consequently be diminished by 17″,16. This alteration is made in the Catalogue of mean N.P.D.

p. (32), heading of first column, *for* Transit of Limb, *read* Transit of Center.

pp. (51) and (52). An erroneous rate of the Hour Circle is used on Nov. 22. Instead of $+3^{m}. 16^{s}$, it should have been $+0^{m}. 6^{s}$. The apparent excesses of R.A. will thus become, -2^{s},74 and -5^{s},68. In p. (72), Nos. 25 and 26, the concluded excesses will be -1^{s},26 and -3^{s},33; the concluded R.A. of Comet, 16 . 30. 12,71 and 16. 30. 10,64; and the errors of Tables, −0 . 43,17 and −0 . 43,70.

APPENDIX, No. 72 of Mr Airy's Catalogue, the N.P.D. of 23 Eridani δ should be *increased* by 5 (0″,60 + 0″,715), or 6″,57, the proper motion 0″,60 having been applied with a wrong sign, and the correct proper motion according to Argelander being 0″,715. The N.P.D. will thus become, 100°. 20′. 39″,02.

CAMBRIDGE OBSERVATIONS.

INTRODUCTION.

Description of Instruments and Methods of Observing.

The *Transit* instrument (constructed by Dollond in 1824) is nearly 10 feet in focal length, and the aperture of the object glass is 5 inches. Its supports are very massive stone piers, and the pivots of the axis, which are of bell metal, turn in brass Y s which have the usual vertical and horizontal adjustments. At the focus of the eye-piece are seven fixed vertical wires, and parallel to them one which is moveable by a micrometer screw with a graduated head. The illumination of the field of view is effected by a lamp placed close to one of the pivots of the axis. The aperture of the object glass can be contracted to 4, 3, or 2 inches, but the whole is generally employed. The magnifying power commonly used is about 140.

To counteract any effects from the Sun's heat, the instrument is protected with a covering of oiled silk: and before and after the Sun's passage, the South shutters of the Transit Room are closed, so as not to allow the Sun to shine on the piers.

The clock used for the Transit Observations was constructed by Hardy, and has Hardy's escapement. It has generally a losing rate, and the minute-hand consequently requires to be put forward from time to time.

The Telescope is set at a required elevation by means of one or the other of two small graduated circles carried by the eye-end, and furnished each with a moveable index bearing a spirit-level.

It is the practice in observing to look at the clock-face and take a second before the transit over the first wire, and then to count by the beats and not look again at the clock till the object has passed all the wires. By this means any error in counting and the amount of it will generally be discovered, and a memorandum is made accordingly. The number of wires which the error affects is ascertained by a comparison of the intervals. Sometimes there is reason to alter the seconds of some of the wires when no memorandum has been made of an error in counting, and occasionally a single wire appears to be 1^s wrong. The alterations are then made solely from a comparison of the intervals. All alterations of the seconds are carefully mentioned in the printed notes to the *Transits as observed.* If the observer is prevented taking a second from the clock, either from being too late or from the quick succession of two objects, he records the difference between his counting and the clock indication at the end of the observation, and the times of transit over the wires are subsequently altered to those which would have been written down if the seconds had been taken immediately from the clock. When this circumstance happens, it is mentioned in the notes.

The *Mural Circle* (constructed by Troughton and Simms) was mounted in October 1832. Its diameter and the length of the telescope are each eight feet: the aperture of the object glass is 4½ inches. Excepting its size, it is in all respects like the Mural Circles of the Greenwich Observatory.

The axis on which the instrument turns is a hollow cone, 4½ feet long, passing through a very massive stone pier. The circle is on the eastern side of the pier, and both bearings of the axis are on the same side of the circle. At each bearing the axis is armed with a steel ring, which turns within a steel cylinder. A considerable part of the weight at the bearing of the larger ring or that near the circle, is supported on friction wheels by lever counterpoises. The divisions of the limb are on the external edge; about which six microscopes for reading off, attached by brass supports to the stone pier, are disposed at equal intervals, with the directions of their collimation in the plane of the circle. The eye-pieces of the microscopes are fitted with micrometers, by which the intervals of the divisions are subdivided into seconds, and by estimation into tenths of seconds. The telescope is carried by a steel rod passing through the hollow conical axis, and its position on the circle is secured by frames which are clamped to the limb at both ends of the telescope, one being as near as possible to the object-glass-cell and the other as near as possible to the wire-frame. At the focus of the eye-piece of the telescope are five fixed vertical wires, one fixed horizontal wire, adjustible by a screw so that an equatoreal star shall move exactly along it, and parallel to this another wire, moveable by a micrometer screw. The instrument is fixed or moved slowly by clamps, which act immediately on the limb by tangent screws, and are so disposed about the circle that they can be severally used according to the convenience of the observer.

To prevent any injurious effect from the Sun's rays in mid-day observations a wooden screen is provided, part of which consists of a sliding board with a circular aperture to admit of observations of the Sun when the screen is let down.

The Clock used in the Circle Room is one of Molyneux's. The Transit and Circle Rooms being adjacent, and the clock Hardy having a loud beat, the two clocks admit of immediate comparison.

The eye-end of the telescope is furnished with a small setting-circle of the usual construction; but the setting is generally performed by means of a pointer fixed to the stone pier, a few degrees below the northern extremity of the horizontal diameter of the Circle. The graduation of the Circle proceeds in the direction from the southern part of the limb over the highest point to the northern, and consequently the setting angle for a direct observation is greater, and for a reflexion observation less, as the North Polar Distance of the object is greater. The setting angles for a known N.P.D. being known, those for any other N.P.D. are readily calculated. It is the practice to prepare, by calculating the requisite setting angles, a *working catalogue* of the objects proposed to be observed in the course of each day, and a standing working catalogue of the stars which are observed repeatedly throughout the year.

The following is the mode of observing a fixed star directly and by reflexion at the same transit. The Circle is first of all set and clamped for the reflexion observation, and the position of the basin of mercury is determined, in the day-time, by looking at the reflexion of the light passing through the eye-glass of the telescope, and in the night-time, by looking at the reflected light of the lamp which illumines the field of view. The divisions are then bisected by the cross-wires of the microscopes, which are either read off at the time, or may be left to be read after the direct observation. The star in its passage is bisected by the micrometer wire a little before it reaches the middle vertical wire, when this is possible; the Circle is then immediately unclamped and turned to be set for the direct observation; it is then clamped again with that clamp which will be most convenient in the next operation, which is, to bring the fixed wire on the star by the tangent-screw. If nothing occurs to cause delay, the second bisection is made a little after the passage of the star across the middle wire. When, as it often necessarily happens, either observation is taken at a considerable distance from the middle wire, this circumstance is noted for the purpose of applying a correction for curvature of path in the computations. Immediately after the direct observation, the microscopes are read if they were not read before, the divisions are again bisected and microscopes read, the eye-piece micrometer is then read, and lastly the states of the barometer and of the free and attached thermometers are noted down.

When a direct observation only is taken, the star is usually bisected by the fixed wire at its passage across the middle wire. If two or more stars are to be observed of nearly equal N.P.D., and follow in quick succession, the first is bisected by the fixed wire and the others by the micrometer wire, the micrometer being read after each bisection by the micrometer wire.

For observations of the Sun, the instrument is prepared by setting for one of the limbs, bisecting the divisions, and reading off the microscopes. The limb, a little before its passage across the middle vertical wire, is touched by the micrometer wire: the Circle is then unclamped and turned by hand to bring the fixed wire near the other limb, and after clamping again, the fixed wire is brought by the tangent-screw into contact with the limb. The divisions are then bisected again, and the microscopes and micrometer read off.

In observing the Planets, when their apparent discs are of sensible magnitude, one limb (which in the case of Venus is that that appears most fully illumined,) is bisected by the fixed wire, and the other limb, if illumined, or the extreme illumined part of the disc, by the micrometer wire. When the apparent disc of a planet is very small, it is bisected like a star.

In observations of the Moon, the limb is touched by the fixed wire as it passes the first vertical wire, and by the micrometer wire at its successive passages across the other wires, the micrometer being read after each of the latter contacts. If the contacts are not made exactly at the vertical wires, the places are noted. When the Moon's change of N.P.D. is very slow, all the contacts are made with the micrometer wire to avoid the confusion arising from the proximity of the wires. (This precaution has been inadvertently omitted in some of the observations of this Volume.) When the Moon's N. and S. limbs are nearly equally illumined, both are observed. In this case the instrument is set for one limb and the divisions bisected before the observation: that limb is observed at either two or three wires, the instrument is unclamped and turned by hand, and the other limb is then observed at the remaining wires.

In every instance where an observation is taken at a considerable distance from the middle vertical wire, the distance or time is noted for the purpose of applying a correction, if sensible, for curvature of path, as also, in the case of the moving bodies, for change of N.P.D. When stars, such as Polaris and δ Ursæ Minoris, whose curvature of path is very considerable, are not observed very near the time of their meridian passage, the time by Molyneux is recorded and converted into true sidereal time by a comparison made with Hardy soon after the observation.

It is to be observed, that for the sake of uniformity all micrometer readings increase as the micrometer wires move *towards* the graduated micrometer-head. The six microscopes have their micrometer-heads all directed the same way relatively to the graduation of the circle. That at the northern extremity of the Circle's horizontal diameter has the micrometer-head *downwards*. Also, when the telescope is in a horizontal position, with the object glass looking South, the micrometer-head of the eye-piece micrometer is downwards.

The *Five-feet Equatoreal* was erected in May 1832 by Mr Thomas Jones. It occupies an elevated Dome in the center of the Observatory, and rests on a stone pillar raised expressly for supporting it, the height of which above the level of the ground is about 26 feet. The polar axis consists of four brass cylinders fixed at their ends to two brass frames, in the centers of which are the pivots. The supports of the pivots are stone piers rising from the pillar; that of the upper or northern pivot is surmounted by an open iron frame, about three feet long. The steadiness is as perfect as can be expected in an instrument of this kind. The declination circle consists of two flat rings, containing the Telescope between them, and connected by bars across. One ring bears the graduations to every 5′, which by micrometer-microscopes can be divided to 1″; the other ring is grasped by the clamp of a tangent-screw. The hour circle is attached to the frame carrying the lower pivot, and is graduated on the edge to 20^s of time: by means of two micrometer-microscopes firmly attached to the stone pier, the graduations are subdivided to $0^s,1$ of time. The diameter of the declination circle is 3 feet, and that of the hour circle 2 feet: the length of the Telescope is 5 feet: the aperture of the object glass $2\frac{3}{4}$ inches. In the eye-piece of the Telescope are a double-wire micrometer, one equatoreal fixed wire, and five vertical wires.

The clock used with the Equatoreal was made by Graham, and has the dead-beat escapement and gridiron pendulum. It is compared with the Transit clock by either a sidereal or a solar chronometer.

The above are the instruments which were in use in this Observatory previous to the year 1838. Towards the close of that year the mounting of the large Equatoreal, which, in honor of the noble Duke by whom it was presented to the University of Cambridge, is named the *Northumberland Equatoreal,* was so far completed as to allow of making some observations with it. A particular description of this grand instrument will, it is hoped, be given to the public by the Astronomer Royal Mr Airy, who projected the plan of mounting while he was resident at this Observatory, and since his removal to Greenwich has superintended the execution of all the parts relating to it. The following will suffice for understanding the observations contained in this Volume.

The object-glass is one of Cauchoix's: its effective aperture is 11½ inches. All the brass-work, the graduations, and the eye-pieces, were executed by Mr Simms. The focal length of the Telescope is 19⅓ feet. The mounting is similar in kind to that of the Five-feet Equatoreal. The Polar Axis consists of six stout deal poles, the ends of which are fastened to two six-sided cast-iron frames, at the centers of which are the upper and lower pivots. The poles are braced across their middle by transverse iron bands, counter to which 24 deal spars, crossing each other two and two and abutting near the middle of the poles so as to thrust them obliquely outwards, are made to act by means of screws which turn in shoulders at their opposite extremities and press against the iron frames. These answer the double purpose of giving stiffness to the Polar Axis, and adjusting the iron frames so as to be perpendicular to the axis of the instrument. The support of the upper pivot consists of two strong wooden beams connected by two cross iron bars and surmounted by a triangular iron frame at the apex of which is the Y for the pivot to rest in. The beams are inclined towards each other in a plane at right angles to the meridian and deviating a little from the vertical towards the south: their lower extremities, which are armed with iron off-sets, are firmly embedded in brick-work, and their narrow faces are turned towards the polar axis. By this construction the view of no part of the heavens is materially obstructed. (Polaris and its companion can be well seen.) The support of the lower pivot is a large stone slab resting on a mass of brick-work at a small elevation from the ground. The pivot turns in a socket carried by a square mass of iron which is moveable by adjusting screws to allow of bringing the axis of the instrument into coincidence with the axis of the heavens. This mounting is found to possess in a remarkable degree the character of steadiness.

The tube of the Telescope is made of well seasoned deal. The pivots of the axis about which it moves, turn in cylinders formed of brass pieces, furnished with adjusting screws, and fixed to two opposite poles of the Polar Axis, the Telescope tube just passing between the other four. Attached to one side of the Telescope tube is a flat brass bar nearly 6 feet in length, carrying a small graduated arc perpendicular to its length at one end, and turning at the other about a pin fixed in the Telescope tube at the distance of 2½ feet from the axis of revolution of the Telescope. This is called the Declination *Sector.* The Sector graduation is read off by a microscope micrometer fixed to the Telescope tube. For directing the Telescope to any required N.P.D. graduated* brass rods of different lengths are provided, which are used in the following manner. The rod proper for the given N.P.D. is attached at its extremity by means of a clamp to a pin fixed in one of the poles of the Polar Axis, and by means of a sliding piece previously clamped to the rod at the given N.P.D. as shewn by the rod's graduation, it is similarly attached to a pin fixed in the declination sector. Near this pin and carried by the sector is a combination of one toothed wheel and two pinions turned by a milled head and acting in rack-work fastened to the Telescope tube. As the sector is now made stationary by the rod, the effect of turning the milled head will be to make the Telescope move in declination. By turning it till the sector reading has a certain value easily ascertained by an observation of a known star, the Telescope is directed as required. The rods also answer the purpose of steadying the Telescope.

The construction above described is evidently adapted for measuring small differences of N.P.D., the difference of two readings of the sector microscope in two positions of the Telescope being the difference of N.P.D. as measured by the sector graduation.

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* The graduation of the rods was effected by placing the Telescope in the plane of the Meridian, and employing a setting circle of the usual construction, fixed to the eye-end of the Telescope. The index error of the circle being nearly corrected, and the sector fixed in a position about mid-way between the extremities of its range, the N.P.D. marked on the rods were the same as those indicated by the circle.

The Hour Circle is $5\frac{1}{2}$ feet in diameter. It is not permanently attached to the polar axis, but can be clamped to the lower iron frame at pleasure. There are two indices with verniers: one fixed to the support of the lower pivot on the South side of the circle, the other fixed to the iron frame. By setting the latter to a certain angle, known by an observation of a known star, the Telescope can be directed to a given R.A. at a given sidereal time by means of the other index in the usual manner. The graduation of the Circle has been performed with great care, and by the aid of the verniers can be read off with the naked eye to 1^s of time. The outer rim of the circle is cut with teeth to which an endless screw, connected by a brass rod with a large clock, can be applied at pleasure, for the purpose of giving a movement to the instrument about the polar axis. The clock is put in motion by a heavy weight, by the power of which the going is maintained during the act of winding up The clock's rate is under command, and can be regulated to sidereal time nearly. The clamping of the Hour Circle to the iron frame is effected by a tangent-screw clamp fixed to the frame, by means of which, with the aid of a handle extending to the place of the observer, he can, when the endless screw is applied, give motion to the instrument, through a limited space, upon the Hour Circle. The rate of motion given to the Hour Circle by the clock, is not affected by this movement. Hence supposing the Hour Circle to go exactly sidereal time, small differences of R.A. can by this contrivance be measured by reading off the angles pointed to by the moveable index before and after the change of position. In any case by ascertaining the rate of motion of the Hour Circle the same thing may be done.

It will be seen that this Equatoreal is adapted for measuring small differences both of Right Ascension and North Polar Distance. For this purpose principally it is used in the observations of Encke's Comet contained in this Volume.

TRANSITS AS OBSERVED.

The first division of the tabular portion of the work is allotted to the Transit Observations. The left-hand pages record the transits as they were observed, with no other results of calculation than the corrections for reducing the mean of the observed times of transit over part of the wires, to the time of transit over the mean of all the wires.

The *first column* contains the day of the month, supposed always to commence with the Sun's meridian passage.

The *second column* contains the names of the objects observed. With respect to nomenclature the following rule was adopted in the Volume of Observations for 1837, and for the sake of uniformity has been adhered to in this. Stars contained in the Nautical Almanac of 1838 have the same names here given them as in that work: Stars in the Astronomical Society's Catalogue and not in the Nautical Almanac, are named, in preference, by the letters in that Catalogue attached to the name of the constellation; next, by Flamsteed's numbers attached; and in default of these, by merely the numbers of the Catalogue. All other stars are named by their approximate North Polar Distances.

In the second column are also stated (in small type) such circumstances of the observations as could be expressed briefly: which are principally those depending on atmospheric causes. Longer remarks, and such as relate to mistakes in observing, are introduced at the bottom of the page. To give an opportunity of judging of the weight due to individual observations, it was thought right to omit the mention of no circumstance which seemed in any way to affect an observation, especially when the object observed was the Sun, Moon, or a planet.

In observing a double star, the brighter of the two is taken. If the stars are of nearly equal magnitude, the one observed is distinguished as *preceding* or *following*.

The *seven succeeding columns* contain the times, by the Transit clock, of passage over the seven wires. The hour and minute in the seventh of these columns always refer to the wire last observed.

When, as not unfrequently happens from atmospheric and accidental causes, the times of transit across all the wires cannot be observed, a correction is necessary for reducing the mean of the observed times to the time of transit over the mean of all the wires. This is effected by adding (with the proper sign) to the mean of the observed times, the sum, divided by the number of wires observed, of the distances in time of the omitted wires from the mean of all.

At the beginning of 1838 I put a new set of wires into the Transit according to a method recommended by Mr Simms. The following table of the intervals employed throughout the year in finding by the rule above the corrections to the mean of the observed wires, was calculated from the 22 observations of δ Ursæ Minoris between Jan. 1 and Feb. 16, in the manner explained at p. xiv of the Introduction to the Volume for 1837. The wires are distinguished by the letters *A*, *B*, *C*, *D*, *E*, *F*, *G*; and stars above the pole pass them in this order when the illuminated end of the axis is East.

Distance in Time of each Wire from the Mean of all.

	For Equatoreal Stars.	For δ Ursæ Minoris. Declination = $86^{\circ}.35' + n''$.	For Polaris. Declination = $88^{\circ}.26' + n''$.
A	$-40{,}264$	$-11\ .\ 15{,}88 - n \times 0{,}055$	$-24\ .\ 35{,}54 - n \times 0{,}263$
B	$-26{,}865$	$-\ 7\ .\ 30{,}86 - n \times 0{,}037$	$-16\ .\ 23{,}47 - n \times 0{,}175$
C	$-13{,}482$	$-\ 3\ .\ 46{,}24 - n \times 0{,}018$	$-\ 8\ .\ 13{,}24 - n \times 0{,}087$
D	$-\ 0{,}178$	$-\ 3{,}00$	$-\ 6{,}52 - n \times 0{,}001$
E	$+13{,}396$	$+\ 3\ .\ 44{,}79 + n \times 0{,}018$	$+\ 8\ .\ 10{,}07 + n \times 0{,}087$
F	$+26{,}977$	$+\ 7\ .\ 32{,}75 + n \times 0{,}037$	$+16\ .\ 27{,}58 + n \times 0{,}175$
G	$+40{,}416$	$+11\ .\ 18{,}43 + n \times 0{,}055$	$+24\ .\ 41{,}12 + n \times 0{,}264$

Besides the cosecant of N.P.D., by which the numbers for equatoreal stars are multiplied when the N.P.D. is not very small, a factor is used for the Sun and Planets, which is deduced from the horary variation of their R.A. given in the *Meridian Ephemeris*. The multiplier for the Moon takes account of the variation of R.A. as affected by parallax, and is calculated from the expression

$$\frac{3600 + I}{3600} \times \frac{\textit{sin Moon's geocentric Z.D.}}{\textit{sin Moon's apparent Z.D.}} \times \textit{cosecant of N.P.D.},$$

where I is the increase of the Moon's R.A. in passing over 1^{h} of terrestrial longitude, given under the head of Moon-culminating Stars in the *Nautical Almanac*.

The first limb of Jupiter and the first limb of Saturn's Ring are usually observed at the wires *A*, *C*, *E*, and *G*; and the second limbs at the wires *B*, *D*, and *F*. The observation of each limb is corrected to the mean of all the wires by the foregoing table.

The corrections to the mean of all the wires occupy the *tenth column*.

The *eleventh column* contains the initial of the observer's name. The observations marked *C* are by myself, those marked *B* by Mr Baldrey, and those marked *G* by Mr Glaisher.

The space immediately below the columns contains notices of the position of the instrument and the order of the wires, together with the times of reversing and levelling it, and of putting forward the minute-hand of the clock.

CALCULATION OF APPARENT RIGHT ASCENSIONS.

The concluded times of transit over the mean of the seven wires, as given by the clock, are placed in the *first column* of the right-hand pages. The succeding columns contain the elements of the calculation by which the Apparent Right Ascensions are inferred from these times; which is done by applying corrections for *Error of Collimation*, *Level Error*, *Meridian Error*, and *Clock Error*. The methods of obtaining these corrections will here be severally stated in the order of their application.

1. *Error of Collimation.*

A wooden cross in the form of X, placed so that the vertical micrometer-wire can be brought to bisect its acute angles, serves as a southern mark for determining the error of collimation. It is fixed on the tower of Grantchester church, at the distance of about 2½ miles, and its angular distance West of the meridian is about 14″. To avoid any error that may arise from shifting the position of the instrument in the direction of its axis by the reversion for finding the collimation error, a northern mark is also used. Instead of a fixed northern mark, for which there is no convenient object, a small transit instrument is put up as a horizontal collimator in the northern opening for the shutters, and the micrometer-wire is applied to a selected point of the image of one of its wires. This is found in practice to answer well enough the required purpose.

The following are the observations which I made for the determination of the collimation error in 1838.

Jan. 3. 3^h. Transit reversed. The cross was steady and clear before the reversion, but very unsteady after. The wire of the collimator was seen with sufficient distinctness. One reversion was made before any measures were taken, for the purpose of leaving the instrument after a second reversion in the same position as after that of Dec. 15, 1837.

Illuminated End of Axis East.

	r.
Mean of 6 readings, micrometer-wire coincident with *D*	24,399
.... 6 .... bisecting South mark	22,659
.... 6 .... bisecting North mark	16,845

Illuminated End of Axis West.

	r.
Mean of 6 readings, micrometer-wire bisecting North mark	31,459
.... 7 .... bisecting South mark	25,742
.... 6 .... coincident with *D*	24,407

Reading for line of collimation by South mark	24,201
.... North mark	24,152
Reading for true line of collimation	24,177
Reading for *D*	24,403

The excess of the reading for *D* above the reading for the true line of collimation is $0^{r},226$, which in arc is 3″,85, the value of one micrometer revolution being 17″,06. The readings increase as the micrometer-wire moves from the illuminated end, and consequently after the reversion a star entering from the West comes to the true line of collimation before coming to *D*. Hence considering (as is generally done in this work), an error positive when it requires a positive correction, the error of collimation of *D* will be − 3″,85. And it has been shewn (p. xv) that when the illuminated end of the axis is West, an equatoreal star comes to the mean of the wires *before* it comes to *D* by the interval of $0^{s},178$, or in arc by 2″,67. Hence, adding − 0″,18 for diurnal aberration, the concluded error of collimation of the mean of the wires = − 3″,85 + 2″,67 − 0″,18 = − 1″,36.

Feb. 28. 4½^{h}. The Transit was reversed. The cross was faint, waving, and tremulous before the reversion, but afterwards more distinct and a little more steady. The collimator's wire was not clearly seen, there being scarcely day-light enough.

Illuminated End of Axis West.

	r.
Mean of 6 readings, micrometer-wire coincident with *D*	24,470
.... 8 .... bisecting South mark	25,311
.... 6 .... bisecting North mark	31,113

Illuminated End of Axis East.

	r.
Mean of 6 readings, micrometer-wire bisecting North mark	17,192
.... 6 .... bisecting South mark	23,220
.... 6 .... coincident with *D*	24,474
Reading for line of collimation by South mark	24,266
.... North mark	24,153
Reading for true line of collimation	24,210
Reading for *D*	24,472

Hence the error of collimation of *D* is + $0^{r},262$ or in arc, + 4″,47; and concluded error of collimation of the mean of the wires

= + 4″,47 − 2″,67 − 0″,18 = + 1″,62.

April 30. $2\frac{1}{2}^{h}$. Transit reversed. The cross was seen favorably: but the wind being high, the collimator was so much shaken as to render the observations with the northern mark in some degree doubtful.

Illuminated End of Axis East.

	r.
Mean of 6 readings, micrometer-wire coincident with *D*	24,535
.... 6 .... bisecting South mark	23,351
.... 6 .... bisecting North mark	19,292

Illuminated End of Axis West.

	r.
Mean of 8 readings, micrometer-wire bisecting North mark	29,461
.... 8 .... bisecting South mark	25,247
.... 6 .... coincident with *D*	24,544
Reading for line of collimation by South mark	24,299
.... North mark	24,376
Reading for true line of collimation	24,337
Reading for *D*	24,540

Hence the error of collimation of *D* after the reversion is $-0^{r},203$ or in arc, $-3'',46$; and concluded error of collimation of the mean of the wires $= -3'',46 + 2'',67 - 0'',18 = -0'',97$.

The error of collimation of the mean of the wires before the reversion by the same determination, is equal to $+3'',46 - 2'',67 - 0'',18$, or $+0'',61$. As therefore the collimation error appears to have changed between this reversion and that of Feb. 28, the value $+0'',61$ is used from April 16.

June 21. 6^{h}. Transit reversed. Cross well seen, but not quite steady. The collimator was a little shaken by the wind.

Illuminated End of Axis West.

	r.
Mean of 6 readings, micrometer-wire coincident with *D*	24,483
.... 6 .... bisecting South mark	25,168
.... 8 .... bisecting North mark	22,763

Illuminated End of Axis East.

	r.
Mean of 6 readings, micrometer-wire bisecting North mark	25,663
.... 6 .... bisecting South mark	23,440
.... 6 .... coincident with *D*	24,483

	r.
Reading for line of collimation by South mark	24,304
.... North mark	24,213
Reading for true line of collimation	24,259
Reading for *D*	24,483

Hence the error of collimation of $D = + 0^{r},224$, or in arc, $+ 3'',82$: and concluded error of collimation of the mean of the wires

$$= + 3'',82 - 2'',67 - 0'',18 = + 0'',97.$$

Oct. 8. 3^{h}. Reversion of Transit. The cross was seen under favorable circumstances. The collimator was so much shaken by the wind, that no use could be made of it till I had contrived by fastening the telescope to its support, to make it sufficiently steady.

(In making this reversion I remarked that the micrometer-wire had considerably deviated from its parallelism to the fixed wires. This circumstance, with the variation of the readings for coincidence with *D* at different reversions, proves that the micrometer-wire or its frame is liable to some cause of unsteadiness. As, however, the coincidences with *D* are taken before and after the other measures, and in each reversion have been found to accord with each other, the determinations of collimation error cannot have been affected by this unsteadiness. The measures are always taken at the same part of the micrometer-wire.)

Illuminated End of Axis East.

	r.
Mean of 6 readings, micrometer-wire coincident with *D*	24,370
.... 6 .... bisecting South mark	23,245
.... 8 .... bisecting North mark	22,247

Illuminated End of Axis West.

	r.
Mean of 8 readings, micrometer-wire bisecting North mark	25,964
.... 8 .... bisecting South mark	24,969
.... 6 .... coincident with *D*	24,360
Reading for line of collimation by South mark	24,107
.... North mark	24,106
Reading for true line of collimation	24,106
Reading for *D*	24,365

Hence the error of collimation of $D = -0^{r},259$, or in arc, $-4'',42$: and concluded error of collimation of the mean of the wires

$$= -4'',42 + 2'',67 - 0'',18 = -1'',93.$$

By the same determination, error of collimation of the mean of the wires before reversion $= +4'',42 - 2'',67 - 0'',18 = +1'',57$, which differs by 0″,60 from the determination on June 21. On Sept. 11 the reefs of the object-glass were taken off to be repaired and were shortly after put on again. Possibly this circumstance may have affected in a slight degree the collimation error.

1839. Jan. 2 . $2\frac{1}{2}^{h}$. Transit reversed. The cross was faint and hazy, but sufficiently steady, before the reversion: after which it became clear, but less steady. The collimator's wire was distinct. The collimator was fastened as in the last reversion.

Illuminated End of Axis West.

	r.
Mean of 6 readings, micrometer-wire coincident with *D*	24,436
.... 8 .... bisecting South mark	25,221
.... 8 .... bisecting North mark	27,129

Illuminated End of Axis East.

	r.
Mean of 8 readings, micrometer-wire bisecting North mark	21,362
.... 7 .... bisecting South mark	23,264
.... 6 .... coincident with *D*	24,431
Reading for line of collimation by South mark	24,243
.... North mark	24,246
Reading for true line of collimation	24,245
Reading for *D*	24,431

Hence the error of collimation of $D = +0^{r},186$, or in arc, $+3'',17$: and the concluded error of collimation of the mean of the wires is $+3'',17 - 2'',67 - 0'',18$, or $+0'',32$ after reversion, and $-3'',17 + 2'',67 - 0'',18$, or $-0'',68$ before reversion. The latter value is used from Dec. 18, 1838 to the end of the year. Neither value is used in 1839.

The values of collimation error adopted in the reduction of the Transits, and the limits within which they are used, are mentioned in the space immediately below the columns of the right hand pages.

The correction to the observed time of each transit is in seconds of time,

$$\frac{1}{15} \times \textit{collimation error} \times \textit{cosec. of N.P.D.},$$

the N.P.D. being considered negative when the star passes below the pole.

2. *Level Error.*

The deviation of the axis about which the Transit turns from a horizontal plane, is found by applying to the pivots a spirit-level, furnished with a cross-level adjustment, and with graduated scales for reading off the positions of the extremities of the bubble. It is the practice to reverse the level five times, and thus obtain six eastern and six western readings, the scales being first disposed in positions convenient for reading off, which they retain during the whole of the operation. In the graduation of each scale the numbers increase in the direction from the middle of the bubble towards the extremity. Hence the algebraic *excess* of the sum of the western above the sum of the eastern readings, divided by the whole number of readings, is the measure, in degrees of the scales, of the *elevation* of the west end of the axis above a horizontal plane. This supposes the pivots to be exactly cylindrical and equal.

The method of correcting for an inequality in the radii of the pivots, is explained in the Introduction to the Volume for 1837, at page xxviii, where it is also shewn, from observations made towards the close of 1837, that the pivots do not sensibly differ in size. The same thing appearing from observations made at the beginning of 1838, no correction for inequality of the radii of the pivots is applied to any of the levellings made use of in this Volume.

All the levellings, however, from which the above conclusion was drawn, were performed with the Telescope horizontal and the object glass towards the South. Early in 1838 I discovered that level errors obtained by levelling with different inclinations of the Telescope to the horizon, were not the same as for the horizontal position. This must be attributed to alterations of the two pivots in different degrees from the cylindrical form, owing, no doubt, to the wear produced by the constant use which has been made of the instrument for upwards of ten years, and to some difference in the quality and hardness of the pivots. The following Table exhibits the different results which I obtained by levelling successively when the Telescope was horizontal, and when inclined at an angle of about 45° to the horizon, which is the greatest inclination that allows of the application of the level.

Time of Observation 1838.	Position of			Sum of six East Readings.	Sum of six West Readings.	Excess of latter, divided by 12.	Difference of Excesses.
	Telescope.	Object Glass.	Illuminated End of Axis.				
March 13 . $3\frac{1}{2}^{\text{h.}}$	Horizontal	South	East	70,1	38,6	- 2,63	0,26
4	Inclined at 45°	South	East	52,6	24,1	- 2,37	0,39
3¾	Horizontal	North	East	60,8	27,7	- 2,76	
15 . 5½	Horizontal	South	East	64,1	30,1	- 2,83	0,58
6¼	Inclined at 45°	South	East	62,9	35,9	- 2,25	0,37
6	Horizontal	North	East	64,5	33,1	- 2,62	
17 . 4¼	Horizontal	South	East	91,8	55,6	- 3,02	0,49
4¾	Inclined at 45°	South	East	88,7	58,3	- 2,53	
April 5 . 2	Horizontal	South	East	75,5	37,6	- 3,16	0,59
2½	Inclined at 45°	South	East	69,5	38,7	- 2,57	
30 . 2	Horizontal	South	East	89,4	51,5	- 3,16	0,34
2¼	Inclined at 45°	South	East	77,8	43,9	- 2,82	
3½	Horizontal	South	West	71,3	25,2	- 3,84	0,58
4	Inclined at 45°	South	West	75,5	22,5	- 4,42	

These results shew that the depression of the west end of the axis is greater in the horizontal than in the inclined position of the Telescope, when the illuminated end is East, and less by about the same quantity when the illuminated end is West. The mean of the numbers in the last column is 0,45. The effect of the difference of curvature of the pivots being left out of consideration, it was thought to be sufficiently accurate to adopt for level error the mean of those corresponding to the horizontal position of the Telescope and to an inclination of 45°.* Hence + 0,23 or − 0,23, when the illuminated end of axis is East, and − 0,23 or + 0,23, when the illuminated end is West, has been added algebraically to half the mean excess of the western above the eastern readings, according as the instrument was levelled in the horizontal or the inclined position of the Telescope. When the levelling was performed in both positions, the mean of the two results has been adopted. These corrections have been applied from March 3 to the end of the year.

Supposing the West end of the axis to be the more elevated, the plane in which the line of collimation moves deviates to the East, and stars above the pole, *cæteris paribus*, come to it *before* coming to the meridian. Hence the observed time of transit requires a *positive* correction, when the sum of the western readings of the level exceeds the sum of the eastern. Consequently (by the rule already mentioned with respect to the error of collimation) the sign of the level error is given by subtracting algebraically the latter sum from the former. The measure of the inclination of the axes in degrees of the scales, (corrected as above stated,) being multiplied by 1″,3 the angular value of the unit of the scales, the result, with the proper sign attached, is the Level Error inserted together with the time of using it, in the space below the columns of the right hand pages.

The numerical correction applied to the observed time of each transit, previously corrected for error of collimation, is, in seconds of time,

$$\frac{1}{15} \times \textit{level error} \times \textit{cosine of Z.D.} \times \textit{cosecant of N.P.D.},$$

the N.P.D. being negative when the star is below the pole.

The levelling is commonly performed on the Monday of each week, and the determination is used from the third or fourth day previous. Between Aug. 13 and Aug. 30 it was inadvertently omitted, and the mean of the determinations on those days is consequently used in the interval.

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* The corrections have been calculated for the current year (1839) with greater accuracy and from a greater number of observations.

During the cold weather of January the Transit Level could not be made use of on account of the great length of the bubble. The levelling on Jan 12 at 1^h, when the temperature was 26°,8, was effected by fastening the Equatoreal Level, which is not attended with the same inconvenience, to the support of the Transit Level, and then performing the levelling in the usual manner. Half the mean excess of the western above the eastern readings was $-0,88$, and the value of the unit of the scales being ascertained, by strapping it to a spoke of the Mural Circle, to be $2'',38$, the adopted level error was thence inferred.

On Oct. 8 the screws for the vertical adjustment of the axis were moved to diminish the amount of level error, which had gone on increasing from the beginning of the year, by the gradual increase of depression of the west end of the axis. After the alteration the west end became the higher of the two.

3. *Meridian Error.*

The angle by which the plane of motion of the true line of collimation, (supposing the level error corrected,) deviates from the plane of the meridian, has been generally found by means of two or more transits of Polaris or δ Ursæ Minoris, alternately above and below the pole, and as often as possible, consecutive. The following is the mode of conducting the calculation for this purpose.

Let T represent the time in which the circumpolar star describes the portions of its small circle which lie between the plane of the meridian and the vertical plane in which the axis of the Telescope is now supposed to move. If the star had no motion in R.A. and the clock no rate, the time T would be the difference between 12^h and the interval from one transit to the next, as inferred from the observed times of transit corrected for collimation and level errors. The change of the star's R.A. and the clock's rate are taken account of by adding to the second of the observed transits, when two only are employed, the loss of the clock in 12^h, and subtracting the increase of the star's R.A. in the same time. The clock's loss has usually been derived from the difference of the uncorrected transits of the same star or stars on two days near the times of observation of the circumpolar star, and the change of R.A. is taken from the Nautical Almanac. These corrections being attended to, the rule employed for finding T is to subtract algebraically the clock time (corrected for errors of collimation and level) of the *inferior* transit from that of the superior, the latter being first increased or diminished by 12^h, according as the star made use of is Polaris or δ Ursæ Minoris. The result is positive when the line of collimation deviates to the east of meridian, and negative when it deviates to the west. Also the observed time of transit of a star on the south side of the zenith requires a positive correction for meridian error in the former case, and a negative correction in the latter. Hence the sign of the meridian error is the same as that of T obtained as above stated. The same rule applies when the two transits are not consecutive, provided the second be corrected as before in proportion to the interval between them.

When three consecutive transits of Polaris or δ Ursæ Minoris have been obtained, it is not necessary to correct for the clock's rate or the change of the star's R.A. For supposing these to be uniform in the interval between the first and third transits, and the times of transit to remain uncorrected, the remainders obtained by subtracting, according to the above rule, either the middle term from the two extremes, or the two extremes from the middle, will be one in defect and the other in excess by the same quantity, and half their sum will be T.

The time T being known, the meridian error in seconds of space is,

$$\frac{15\,T}{2} \times \textit{tan} \ast\textit{'s N.P.D.} \times \textit{cosec. of colatitude.}$$

The multiplier of T for Polaris is $\frac{1}{3{,}016}$ and for δ Ursæ Minoris $\frac{1}{1{,}370}$.

When more than three consecutive transits have been obtained, a value of the meridian error is deduced from the first, second, and third; another from the second, third, and fourth; and so on. If the different values are nearly equal, the mean of all is employed; when they differ considerably, they are either used separately or in groups.

In a few instances the meridian error has been determined by single transits of the circumpolar star compared with transits of known stars. This method consists in deriving from the known R.A. of the star and the observed time of its transits corrected for errors of level and collimation, an expression for the error of the clock, in which the meridian error is the only unknown quantity, and then obtaining a like expression from the tabular R.A. and transit of the circumpolar star, by equating which to the preceding, after correcting for the clock's loss in the intervening time, the value of the meridian error is deduced. As this is not an independent method and does not appear to give satisfactory results, it has been seldom made use of. On Jan. 11, Feb. 8, and Nov. 22, it is employed in determining by transits of the same stars on two not very distant days, the change of meridian error in the interval, the absolute error on one of the days being inferred from this change and an independent determination on the other. On Jan. 22, it is employed by itself, as giving the most probable value at a time when the meridian error was subject to great irregularity, owing apparently to great and abrupt changes of temperature.

As it appeared from observations with the spirit-level already detailed, that the transit pivots had in some degree changed their form, it was thought right to enquire whether this circumstance has any effect on the determination of the meridian error. For this purpose I calculated, first, the distance of the true line of collimation from Grantchester cross from the measures taken at or near all the reversions of the instrument for collimation error from March 18, 1829, to Jan. 3, 1838, and then inferred from those determinations of meridian error by circumpolar stars which were nearest the respective times of reversion, the distance of Grantchester cross from the meridian. The mean of all the results, 46 in number, was found to be 14″,56; and the mean of 12 in the years 1829 and 1830 was 14″,55. (It should be observed that individual results differed very considerably from each other.) The only inference to be drawn from the near accordance of the above values is, that the determination of meridian error by circumpolar stars is the same now as in the years 1829 and 1830, when the instrument had been but a short time in use and the form of the pivots might be presumed to be unchanged; and consequently that the subsequent change detected by the level has no sensible effect on the meridian error as found by that method.

As the distance of Grantchester cross from the meridian may be supposed to be well known from the above mentioned calculations, the meridian error may be correctly determined by bisections of the cross. This, as being an independent method, is preferable to employing single transits of the circumpolar stars. I think too, from the comparison of a large number of results, that if favorable opportunities for bisecting the cross be taken, the meridian error found by this method pursues a more regular march and more in accordance with the changes of level error, than when transits of the circumpolar stars above and below the pole are employed. Also any incorrectness in the value of the collimation error affects a determination by the latter method more than one by the former in the proportion of 5 to 3. The determinations by the cross appear, therefore, to be entitled to at least equal weight with the others. Accordingly in many instances in this Volume the adopted value is inferred (in a manner which will be shortly stated) from results obtained by the two methods. Frequently, however, the method of circumpolar stars is used by itself. In one instance a determination by the cross alone is adopted, viz. that used from June 17, no other means being available before the reversion of the instrument on June 21, when it seems a considerable change of meridian error occurred.

The annexed table exhibits all the determinations of meridian error by the cross in 1838, together with those by Polaris and δ Ursæ Minoris which have been used in conjunction with them.

Method and Time of Observation.	Meridian Error		Adopted Meridian Errror.	Remarks.
	by Cross.	by Star.		
	″	″	″	
By Cross Jan. 3 . 3^{h}..............	+ 11,74			At the reversion.
.... Feb. 15 . 4^{h}..............	13,80			
.... Feb. 28 . 5^{h}..............	3,28*		+ 2,06	At the reversion; just before which the screws for the adjustment in azimuth were moved.
By α Orionis, Procyon, and δ Ursæ Minoris, Feb. 28.		– 0,54*		
By Cross March 6 . 5^{h}............	3,60*		+ 2,38	
By δ Ursæ Minoris SP. and δ Ursæ Minoris March 6		+ 1,08*		Allowing + 0^{s},45 for clock's loss and – 0^{s},16 for change of R.A.
By Cross March 9 . 5^{h}............	3,54*		+ 2,32	Cross not quite steady, but distinct.
By δ Urs. Min., δ Urs. Min. SP., and δ Urs. Min. March 8 and 9		+ 0,03*		
By α Orionis, Procyon, and δ Ursæ Min. SP. March 12		+ 0,62*		
By Cross March 13 . 3^{h}............	3,23*		+ 2,01	Cross faint, but steady.
By β Leonis and Polaris SP. Mar. 15		+ 2,59*		Allowing 0^{s},06 for loss of clock.
By Cross March 17 . 4^{h}............	3,35*		+ 2,13	Very favourable circumstances.
.... March 21 . 6^{h}............	3,64*		+ 2,42	
By two sets of three consecutive transits of Polaris March 27—29		+ 1,98*		
By Polaris and Polaris SP. March 30		+ 0,38*		Allowing + 0^{s},45 for loss of clock and – 0^{s},01 for change of R.A.
By Cross March 30 . 6^{h}............	2,51*		+ 1,29	Cross faint and unsteady.
.... April 5 . 3^{h}............	2,94		+ 1,72	Clear but vibrating.
.... April 7 . 5^{h}............	2,12		+ 0,90	Pretty steady and clear.
.... April 13 . 4^{h}............	2,39		+ 1,17	Clear but waving.
.... April 30 . 2½^{h}......	2,12			Before the reversion.
.... April 30 . 3^{h}............	1,62			After the reversion.
.... May 8 . 7^{h}............	1,72			
.... June 5 . 7^{h}............	1,53			
.... June 21 . 6^{h}............	1,31		+ 1,31	Before the reversion.
.... June 21 . 6^{h}............	0,19*			After the reversion.
By Polaris SP., Polaris, and Polaris SP. June 22 and 23		– 0,81*		
By Cross June 27 . 6^{h}............	0,12*		– 0,38	
.... July 3 . 6^{h}............	0,53		+ 0,03	Rather unsteady. Temp. 64°.
.... July 7 . 5^{h}............	0,73		+ 0,23	
.... July 11 . 2^{h}............	1,08		+ 0,58	Unsteady and indistinct. Temp. 68°.
.... July 16 . 6^{h}............	0,17*		– 0,33	Temp. 60°.
By δ Urs. Min. SP. and δ Urs. Min. July 19 and 20		– 1,17*		
By Cross July 21 . 3^{h}............	0,05*			Unsteady.
.... July 28 . 5^{h}............	0,16		– 0,34	Clear but unsteady.
.... Aug. 6 . 23^{h}..	0,45		– 0,05	Unfavorable circumstances.

Method and Time of Observation.	Meridian Error		Adopted Meridian Error.	Remarks.
	by Cross.	by Star.		
	″	″	″	
By two sets of three consecutive transits of δ U. Min. Aug. 13–15		− 0,81*		
By Cross Aug. 17 . 7^h............	+ 0,27*			
By δ Ursæ Minoris Aug. 15 and δ Ursæ Minoris SP. Aug. 17		− 0,66*		Allowing + 2^s,72 for loss of clock and + 0^s,92 for change of R.A.
By Cross Aug. 25 . 7^h.............	+ 0,22		− 0,28	
.... Sept. 5 . 4^h...............	− 0,17		− 0,77	Circumstances not altogether good.
.... Oct. 8 . 3^h...............	+ 0,15*			On reversing the Transit.
By Polaris SP. Oct. 16 and Polaris Oct. 17		− 2,38*	− 1,12	
By Cross Oct. 25 . 3^h...............	+ 0,68*			Satisfactory.
By Polaris and Polaris SP. Oct. 26		− 2,38*	− 1,12	
By two sets of three consecutive transits of Polaris Oct. 28—30		− 1,59*	− 0,33	
By two sets of three consecutive transits of Polaris Oct. 31—Nov. 1		− 0,88	+ 0,38	
By Polaris SP. Nov. 7 and Polaris Nov. 9, and by Polaris and Polaris SP. Nov. 9		− 1,11	+ 0,15	
By three consecutive transits of Polaris Nov. 12 and 13		− 0,65	+ 0,61	
By Cross Nov. 22 . 2½^h...........	+ 2,33*			Cross hazy and unsteady.
By α Pegasi, Polaris, and α Arietis Nov. 26		− 0,78*	+ 0,67	
By Polaris SP. Dec. 3 and Polaris Dec. 4		− 0,02	+ 1,43	
By Cross Dec. 7 . 0^h...............	+ 2,08*			
By three consecutive transits of Polaris Dec. 7 and 8		− 0,62*	+ 1,17	
By Polaris SP. Dec. 9 and Polaris Dec. 10		+ 0,06		
By Polaris and Polaris SP. Dec. 18 and 19		+ 0,85*	+ 1,40	For this and all succeeding the collimation error found Jan. 2, 1839, is employed.
By Cross Dec. 25 . 23^h...........	+ 1,74*			
By two sets of three consecutive transits of Polaris Dec. 26—28		+ 0,88*	+ 1,43	
By Cross Jan. 2 . 3^h. (1839).......	+ 2,13*			

It will be seen that the determinations by the cross invariably place the line of collimation more to the East than those by stars; which is at variance with what might be expected from the above mentioned results of the calculations for finding the distance of the cross from the meridian, and is the more remarkable as it appears not to have been the case before the reversion of Feb. 28. The difference is greater in winter than in summer. Not knowing to what to ascribe this difference I have judged it best to adopt values of the meridian error which are means between those given by the two methods. The determinations to which the asterisks are attached, are those which, being nearly contemporaneous, have been employed for finding mean values of the differences; which values are made use of between limits indicated by bars across, for deducing the adopted meridian errors. Thus from Feb. 28 to April 13, half the mean excess of determinations by the cross above nearly contemporaneous determinations by stars, is found to be $+ 1'',22$, by which quantity all the meridian errors given by the cross in that interval are diminished to obtain the adopted values. From April 30 to June 21, no correction is applied, the meridian errors, with the exception of that used from June 17, being determined during that time by transits of Polaris, which gave results little different from those by the cross. From June 21 to Sept. 5, the correction to the meridian errors by the cross is $- 0'',50$. From Oct. 8 to Nov. 12, the correction to the meridian errors by stars is $+ 1'',26$; from Nov. 22 to Dec. 10. $+ 1'',45$; and from Dec. 10 to the end of the year $+ 0'',55$. In a few instances, mentioned in the remarks at the bottom of the right hand pages, the adopted meridian error is merely the mean between two values obtained nearly at the same time by the cross and the circumpolar star.

The measures of meridian error by the cross evidently indicate a regular variation depending on the seasons.

The *second column* of the right hand pages contains the seconds, corrected for errors of collimation and level, of all the transits used in determining meridian error.

The meridian error in seconds of space is placed in the *third column*, with bars across to indicate the limits within which each value is used. The methods by which the values are severally obtained, are stated at the bottom of the page.

The correction in seconds of time applied to each transit is

$$\frac{1}{15} \times \textit{meridian error} \times \textit{sin Zen. Dist.} \times \textit{cosec N.P.D.},$$

the zenith distance being negative when north of the zenith, and the north polar distance negative when north of the pole.

The seconds of each transit, corrected for the three errors of collimation, level, and azimuth, are arranged in the *fourth column*. The numbers for the Sun, Mars, Jupiter, and Saturn, when both limbs have been observed, apply to their centers, the mean of the uncorrected transits of the two limbs having been corrected in the same manner as other transits.

4. *Clock Error.*

The *fifth column* contains the seconds of the assumed apparent right ascensions of the stars used for determining clock error. Among these Polaris and δ Ursæ Minoris are always included, not as being used for clock error, but because their apparent right ascensions are sometimes employed for finding the meridian error, and may in any case give the means of judging of the position of the instrument. The Assumed Mean Right Ascensions, Jan. 1, 1838, of the fundamental stars and of the two just mentioned, are as follows:

Star's Name.	Assumed Mean R.A. Jan. 1, 1838.	Excess over Naut. Alm. 1838.	Excess over Cambridge Observations of 1837.	Star's Name.	Assumed Mean R.A. Jan. 1, 1838.	Excess over Naut. Alm. 1838.	Excess over Cambridge Observations of 1837.
	h. m. s.	s.	s.		h. m. s.	s.	s.
α Andromedæ.	0. 0. 1,64	+0,06	−0,10	ε Bootis	14.37.54,77	+0,02	−0,06
Polaris	1. 1.38,15	+0,16	−0,08	α^2 Libræ	14.41.55,77	−0,06	−0,06
α Arietis	1.58. 3,35	+0,10	−0,11	α Coron. Bor.	15.27.49,88	+0,07	−0,08
α Ceti	2.53.49,14	+0,05	−0,11	α Serpentis	15.36.17,63	+0,07	−0,10
Aldebaran	4.26.37,95	+0,03	−0,06	δ Ophiuchi	16. 5.51,68	−0,08	−0,06
Rigel	5. 6.45,37	+0,03	−0,13	Antares	16.19.29,29	+0,12	+0,03
β Tauri	5.16. 3,38	−0,01	−0,09	α Herculis	17. 7.15,85	+0,02	0,00
α Orionis	5.46.24,22	0,00	−0,09	α Ophiuchi	17.27.25,08	+0,06	−0,04
Castor	7.24.15,24	−0,11	−0,06	δ Ursæ Min.	18.24.33,92	−0,97	−0,08
Procyon	7.30.49,06	−0,18	−0,11	α Aquilæ	19.42.52,81	+0,05	−0,07
Pollux	7.35.23,58	−0,13	−0,10	β Aquilæ	19.47.21,36	−0,03	−0,07
α Hydræ	9.19.37,61	−0,06	−0,10	α^2 Capricorni.	20. 9. 3,71	+0,03	−0,11
Regulus	9.59.44,31	−0,18	−0,11	β Aquarii	21.23. 1,71	+0,12	−0,09
β Leonis	11.40.47,53	−0,04	−0,10	α Aquarii	21.57.27,79	+0,03	−0,13
Spica	13.16.40,08	+0,02	−0,09	α Pegasi	22.56.41,79	−0,01	−0,09
Arcturus	14. 8.16,50	0,00	−0,09				

The above right ascensions (exclusive of those of Polaris and δ Ursæ Minoris) were assumed so that the difference of the mean R.A. of every two consecutive stars is the same as that derived from all the Cambridge observations of the two stars during the years 1830—1837, by giving to the difference as determined by the observations of any one year a weight proportional to the product of the respective numbers of observations. As the relative proper motion of two consecutive stars is in this manner only in part taken into account, corrections were applied to the differences of R.A. thus obtained, in all the instances in which there was reason to think the relative proper motion had a sensible effect.* This being done, the mean of all the right ascensions was made the same as the mean of all the mean R.A. Jan. 1, 1838 of the same stars in the Nautical Almanac. It will be seen from the columns headed 'excess over Cambridge observations of 1837,' that the mean of the adopted R.A. is less than that resulting from the observations of 1837 by $0^{s},083$; and consequently that the observations of 1838 are not referred to the same origin as those of preceding years. As the true position of the ecliptic relatively to the assumed origin is determined from year to year by the observations of the Sun, the change is of no importance. The assumed R.A. of Polaris and δ Ursæ Minoris are those given by the observations of 1837 diminished by $0^{s},08$. The method of taking the assumed R.A. for any year from the observations of the year immediately preceding is preferable upon the whole to that above, as avoiding the consideration of proper motions, and will in future be adopted.

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* The instances were, α Arietis and α Ceti, α Orionis and Castor, Castor and Procyon, α Hydræ and Regulus, Regulus and β Leonis, α Pegasi and α Andromedæ. The proper motions were adopted either from Piazzi or from Argelander's Work entitled, DLX *Stellarum fixarum positiones mediæ, ineunte anno* 1830, published in 1835. It seems probable that the variations of the assumed R.A. in the Table above, from the R.A. of the Nautical Almanac, are chiefly owing to the apparent proper motions of the stars. Next to the proper motions of Procyon, Pollux, β Leonis, Arcturus, and α Aquilæ, which are allowed for in the Nautical Almanac, the most considerable and best ascertained are those of α Arietis, Castor, Regulus, and α Andromedæ. The circumstance of the variations being on the whole negative from 5^{h} to 17^{h} of R.A. and positive on the whole in the remaining 12^{h}, seems to indicate that the apparent proper motions are due in part to a real motion of the Solar System.

To form the numbers of the fifth column, the excesses in the table above over the Nautical Almanac 1838, are added to the seconds of the apparent R.A. given in that work. It will be seen that the corrections which are thus adopted for aberration, precession, and nutation, are the same as those of the Nautical Almanac, where, in accordance with what is said in the Preface to the Astronomical Society's Catalogue, (pp. x. xiii. and xiv.) the constant of aberration $=20'',36$, and that of lunar nutation $=9'',25$. For Polaris and δ Ursæ Minoris the additional corrections are applied, depending on the Moon's longitude, which are given in the Nautical Almanac, p. 408.

The clock errors of the *sixth column* are the excesses of the tabular apparent right ascensions (altered as just stated) above the corrected times of transit.

The correction applied to each transit for clock error consists of two parts, the error at the preceding 0^h of the clock, and the increase of error by the clock's rate in the interval between 0^h and the time of transit. These are calculated in the following manner. The observations are divided into groups, severally containing stars proper for giving clock errors. The groups are separated by intervals during which no observations have been taken, and which, as often as possible, belong to consecutive nights. The mean of the clock errors in each group is considered to apply to the mean of the times of transit of the stars which furnish them. The comparison of this mean error with errors similarly derived from the next preceding and following groups, gives a preceding and a following rate; whence a rate is inferred which is assumed to hold uniformly throughout the middle group. No definite rule can be given for inferring the adopted rate: attention is paid to the probable degree of accuracy with which the rates it depends on are determined, and also to the proportion of the intervals separating the preceding and following mean clock errors from the intermediate one. The adopted rate, which is put in the *seventh column*, is employed, first, in deducing from the mean clock error of the group to which it applies, the clock errors at all the times the clock shewed 0^h in the interval between the limits of the group, which errors are arranged in the *eighth column;* and then in finding the additional correction for the interval between each transit and the next preceding 0^h. Bars are placed across the seventh and eighth columns to indicate the limits of the groups to which the successive determinations of clock rate are applied.*

The apparent right ascensions of the *ninth column* are formed by adding the two parts of the correction for clock error to the corrected times of transit contained in the fourth column. It should be observed, that the apparent right ascensions of Polaris and δ Ursæ Minoris cannot be considered as independent determinations, excepting where the meridian error is known by consecutive transits of one of these stars, or by an observation of Grantchester cross: nor can those of the fundamental stars be considered in any degree as such, unless three at least are contained in the same group.

The *Apparent Right Ascensions of Polaris and δ Ursæ Minoris,* (pages 102 and 103) are merely extracted from the columns of Calculated Apparent Right Ascensions: and the *Mean Right Ascensions, Jan.* 1, 1838, *of these Stars* (in the same pages) are formed by subtracting the corrections for aberration, precession and nutation, from the Apparent Right Ascensions. The *Mean Right Ascensions, Jan.* 1, 1838, *of Stars observed in the year* 1838, (pages 104—113) are formed in the same manner. The observations of Polaris and δ Ursæ Minoris being in almost every instance independent, and those observations of clock-stars which were not independent, being employed in the reduction of observations of the Sun, Moon, and Planets, it was not thought worth while to exclude any from the lists of Mean Right Ascensions.

For Stars whose apparent right ascensions are calculated in the Nautical Almanac, the requisite corrections are found by subtracting the mean from the apparent right ascensions of that work, the latter in the instances of Polaris and δ Ursæ Minoris being affected with the corrections depending on the Moon's longitude. For stars in the Royal Astronomical Society's

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* After the clock was cleaned at the end of 1837 the rate became much more regular than it had been previously.

Catalogue, not included in the list of the Nautical Almanac, the corrections are calculated by the formula $Aa + Bb + Cc + Dd$; log A, log B, log C, and log D being taken from the Nautical Almanac without alteration, and log a, log b, log c, log d from the Astronomical Society's Catalogue. For stars not included in that Catalogue, the corrections are calculated by the following formula, depending on the expressions for a, b, c, d, given in p. xvii. of the Preface to the Catalogue:

$$\text{Correction} = \frac{A}{15} \cos \text{Æ} \, \text{cosec} \, N.P.D. + \frac{B}{15} \sin \text{Æ} \, \text{cosec} \, N.P.D. + C \times (n^{\circ} \log = 0{,}4869)$$

$$+ \frac{C}{15} \times (n^{\circ} \log = 1{,}3020) \times \sin \text{Æ} \, \text{cotan} \, N.P.D. + \frac{D}{15} \cos \text{Æ} \, \text{cotan} \, N.P.D.$$

The *Catalogue* in pages 114 and 115 contains the mean R.A. of each star concluded from all the preceding values of its mean R.A. The *Annual Variations* are taken from the Astronomical Society's Catalogue, or are computed by the formula which is used there.

OBSERVATIONS WITH THE MURAL CIRCLE.

The particulars of observations with the Mural Circle, and the elements of the calculations of Geocentric North Polar Distances, are recorded in pages 118—219. The left hand pages contain the pointer and microscope readings, with those corrections only that are required for finding the concluded circle readings. The following is the explanation of the contents of the separate columns.

The *first column* has the day of observation, commencing always with the Sun's passage.

The *second column* contains the name of the object observed, with letters indicating the method of observation. *R* denotes that it is observed by reflexion: *M* that it is observed with the micrometer wire. When the limb of a planet is mentioned, it is that observed with the fixed wire. The Stars are named according to the rule adopted with respect to the Transit observations. Anonymous stars are designated by their approximate right ascensions, which may be inaccurate 2 or 3 seconds.

The *third column* gives the indication of the pointer. The divisions of the circle are 5′ apart, and the pointer is so placed, that the interval on the limb of the circle between it and the zero of microscope *A* is very nearly 10°.45′. The graduation proceeds in the direction from the microscope to the pointer, and the pointer reading in column 3 is the degrees and minutes of that division which, in the order of graduation, comes next *before* the position of the pointer. This, as first set down, is often erroneous by some multiple of 5′; but as the error is readily detected in the computations, no notice is taken of it in the notes.

The *six succeeding columns* contain the readings of the six microscopes. The minutes (which are set down only in the first of these columns) are indicated by the number of indents of the comb of the microscope in the interval between the division bisected by the micrometer wire and the hole of the comb; and the seconds and fraction of a second are taken from the micrometer head. The bisected division is that next to the hole, on the side, as seen in the microscope, of the micrometer-head, (excepting in some instances mentioned hereafter), and as the direction of the micrometer-head from the comb is that in which the graduation proceeds, it will be seen that the microscope reading of *A* is equal to the arc between the division which gives the pointer reading of column 3, and a certain fixed point distant exactly 10°.45′ from the zero of the microscope reading. Consequently the microscope reading *added* to the pointer reading is an arc of the circle, commencing with the zero of its graduation and terminating at this point. If the circle were perfectly graduated, and always retained the same circular form, and if the bisections of the divisions were accurately performed, arcs for different positions of the circle, referred in this way to the same point, would be comparable with each other, though determined by only one microscope, provided also the zero of the microscope reading retained a fixed position relatively to the axis of the circle. Errors from imperfect graduation, inaccurate bisections, and deviations from the circular form, may be presumed to be corrected in a great measure by the use of six microscopes, disposed at the opposite ends of diameters, and at equal distances round the circle. It appears, however, that a residual inequality remains, of which more will be said hereafter.

It is to be observed, that the order of the microscopes, beginning with *A*, which is at the northern extremity of the horizontal diameter of the circle, and proceeding over the highest part of the limb, is *ACEBDF*. Consequently *A* and *B*, *C* and *D*, *E* and *F*, are severally at the opposite ends of the same diameter.

In a few instances the minutes of the microscope readings as set down in the observing book have been altered. As it is scarcely possible that such alterations can be doubtful, I have not thought it worth while to mention them in the notes. The only alteration of the seconds is that of July 17, when by a comparison with other readings on the same day there appeared to be an error of 10″ in the reading of *F*.

The *tenth column* contains the readings of the micrometer for the objects in column 2 which have the letter *M* subjoined. The times also by Molyneux of the bisection of Polaris and δ Ursæ Minoris, either by the fixed or the micrometer wire, whenever these stars are not observed very near the true meridian, are placed in the same column.

The amount of correction for reducing an observation with the micrometer wire to the fixed wire, and that for reducing an observation at a distance from the middle wire to the middle wire, are placed in the *eleventh column*. The former is always placed first. The other depends, in the case of the fixed stars, only on the curvature of their paths in the field of view of the telescope; but for the moving bodies, it depends both on this circumstance and on the change of their N.P.D. The correction depending on change of N.P.D. as well as in every instance the interval between the place of bisection and the middle wire, are stated in the notes at the bottom of the page. These corrections are calculated by the following methods.

The micrometer correction is the difference between the micrometer reading, and the reading at coincidence of the micrometer wire with the fixed wire given at the bottom of the right hand page. This difference is converted into arc by multiplying by 20″,855 which is the arc corresponding to one revolution of the micrometer-head. As the micrometer readings increase in the direction from the fixed wire to the micrometer-head, which is also the direction in which the graduation of the circle proceeds, if the micrometer reading exceed the reading at the coincidence of the wires, the telescope must be turned in the direction of the graduation to bring the object to the fixed wire. The circle reading referred to a fixed extraneous point will thus be diminished, and consequently the correction is *negative* in the case supposed, and positive when the micrometer reading is less than the reading at coincidence.

The coincidence reading at the middle vertical wire is generally observed at the beginning of each week, and the determination is used from the fourth day previous. Also, as the moveable wire is not exactly parallel to the fixed wire, the coincidences are taken from time to time at all the wires, and the different values have been used for the objects (particularly the Moon) which have been observed at a distance from the middle wire. The times of taking the coincidences and commencing with the new values, are stated on opposite pages in the spaces below the columns.*

For determining the value of the micrometer revolution I made an observation of Grantchester spire on March 6, which gave for result 20″,787. This value was used during the early part of the year, but as it was not confirmed by the observation recorded below, which was made under a more tranquil state of the lower strata of the atmosphere, the computations were all altered, and the value obtained by the latter observation is employed throughout the year.

June 27, 6^h. The spire was perfectly steady and clear, and altogether the circumstances were favorable. The Temperature was 60°,8. As in former instances the micrometer wire was applied to the apex of the spire.

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* The coincidence readings varied in 1838 in the same manner as in the preceding year, being greatest when the temperature was lowest. The mean of the readings for the whole year is somewhat greater than that for 1837.

Micrometer reading.	Pointer reading.	*A*	*B*	*C*	*D*	*E*	*F*	Correction for Runs.	Means.	Differences.
r.	° ′	′ ″	″	″	″	″	″	″	° ′ ″	′ ″
+ 12	66 . 35	0 . 38,7	42,3	43,4	43,5	42,3	43,2	− 0,2	66 . 35 . 42,20	8 . 20,00
− 12	66 . 25	2 . 18,4	23,4	22,7	23,6	22,3	23,6	− 0,8	66 . 27 . 22,20	
− 12	66 . 25	2 . 17,7	22,0	22,7	23,3	21,5	22,4	− 0,8	66 . 27 . 21,47	8 . 20,63
+ 12	66 . 35	0 . 38,4	42,2	43,3	43,3	42,4	43,2	− 0,2	66 . 35 . 42,10	
+ 12	66 . 35	0 . 38,6	43,0	43,0	43,2	42,6	43,2	− 0,2	66 . 35 . 42,23	8 . 20,91
− 12	66 . 25	2 . 17,9	22,1	22,7	22,6	21,4	22,0	− 0,8	66 . 27 . 21,32	

The corrections for runs, the amount of which was found immediately after the above observations to be + 1″,6 for 5′, are applied on a principle which will be shortly explained. The mean of the differences in the last column is 8′.20″,51, which being divided by 24 the whole number of revolutions gives for the value of one revolution 20″,855.

The correction to the meridian for curvature of path is obtained for Polaris and δ Ursæ Minoris by converting the time by Molyneux in column 10 into time by Hardy, by means of comparisons given below the columns of the left hand pages, and thence inferring the true sidereal time from the error of Hardy given by the transit observations. The correction is then immediately deduced from the difference of this time and the time of meridian passage given in the Nautical Almanac, by means of tables especially calculated for these two stars. For other stars, the calculation is performed by a formula, easily investigated, according to which, the correction for a given distance from the middle wire varies as the tangent of declination, and for a given declination varies as the square of the distance. When the declination is 45°, the correction for the interval from the middle wire traversed by an equatoreal star in $16^s,6$, which is the mean interval of the wires, is 0″,1503. For small declinations this correction is omitted as being too inconsiderable. With respect to the sign of the correction it is to be observed, that in looking directly at an object between the pole and the equator, the telescope is turned by reason of the curvature of path too far in the direction in which the graduation proceeds. The circle reading is consequently too small, and the correction is positive. The contrary is the case below the equator and below the pole. In reflexion observations, the error of position of the telescope is in the opposite direction, and the sign of the correction is always contrary to what it is in observing directly the same objects.

The correction for change of N.P.D. is calculated in the case of the Sun and Planets, by inferring the change in the time between the instant of observation and the passage across the middle wire, from the horary variation given in the *Meridian Ephemeris*. This time is estimated by intervals and parts of an interval between the wires, taking each interval equal to $16^s,6 \times$ sec. of declination. In observations of the Moon, an exact value of the time of passing from one wire to the next is requisite, on account of the rapid change of her N.P.D. The value employed is $16^s,6$, multiplied by the factor used for correcting to the mean of all the wires in imperfect transit observations of the Moon, the expression for which is given p. xvi. The required correction is then inferred from the variation of the Moon's N.P.D. in 10^m, given in the Nautical Almanac. The sign of the correction for change of N.P.D. is determined by considering, that when the N.P.D. of the moving body is increasing, before it passes the middle wire the telescope is advanced too far in the direction of the circle's graduation, and after passing, too far in the contrary direction. The circle reading requires a *plus* correction in the first case, and a *minus* correction in the other. If the N.P.D. is decreasing, the signs of the corrections are the contrary.

When both limbs of the Moon are observed, a correction is applied, if of sensible amount, to one of them for defect of illumination. To ascertain which is the deficient limb, calculation has been employed to find the position of the diameter joining the extreme illumined points of the Moon's periphery, with respect to the circle of declination through her center. The same thing has been done in every instance in which it was doubtful whether the observed limb was fully illumined. The amount of correction to be applied to the observation of a deficient limb, has been obtained by calculating, first, the angle (θ) which the above named diameter makes with the circle of declination, and then, considering the boundary of illumination to be an ellipse, the ratio (n) of its minor to its major axis. If Δ be the uncorrected diameter by the observation, and $\sin\theta' = \sqrt{1-n^2}\,.\sin\theta$, the required correction $= \Delta\tan^2\frac{\theta'}{2}$. The correction is positive for a deficient S.L., and negative for a deficient N.L.* Its amount is stated in the notes.

The microscope readings obtained in the manner stated p. xxxvii, will, it is plain, be affected with error, unless the movement of the micrometer-wire be regulated so as to be carried by five turns of the micrometer exactly from the image of one division to that of the next. This adjustment is one very difficult to make with accuracy and, if made, would be subject to continual alteration by changes of temperature. On this account a correction is applied to every microscope reading, the amount of which is derived from observations made from time to time, and especially after considerable changes of temperature, in the following manner. The circle is clamped in such a position, that a division is near the zero of the microscope on the *negative* side, or that removed from the micrometer head. This division and the adjacent one on the *positive* side of zero, are bisected and read off. The excess of the reading for the latter above the reading for the other, with sign changed, is the quantity to be added to a micrometer reading of 5′, to correct for the inequality in question. For a less reading the correction is proportionally less. Instead of correcting for each microscope reading separately, it is sufficiently accurate and more expeditious, to add the excesses of the six microscopes together, to take a part of the sum with sign changed, bearing the same ratio to the whole as the approximate mean microscope reading to 5′, and then adding up this part with the six microscope readings, to divide the sum by 6 to obtain the corrected mean reading. The sum of the excesses with sign changed, is the "Correction for Runs" at the bottom of the right hand pages, where also the times of commencing a new value are stated. The dates of the observations for the amount of runs are given on the opposite pages.

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* The results obtained in this manner have been verified by making use of a celestial globe according to the rule given in p. xxxi. of the Introduction to the Cambridge Observations of 1835.

It sometimes happens in an observation, that a division falls so near the zero that it is uncertain whether it be on the negative or positive side. In such a case it is always bisected, and should it afterwards be found to be on the negative side, the pointer reading and minutes of the microscope readings are put down for the sake of uniformity as if the division on the positive side had been bisected, but no correction, or a small negative one, is applied for runs. When this circumstance occurs it is mentioned in the notes.

The following are the Observations for Runs, 1838.

Day.	Division, &c.	*A*	*B*	*C*	*D*	*E*	*F*	Sum of Excesses.
Jan. 9	Negative side.....	34,2	34,3	40,1	34,1	39,1	36,4	
	Positive	32,9	34,8	40,2	31,8	37,6	33,7	
	Excess of latter...	- 1,3	+ 0,5	+ 0,1	- 2,3	- 1,5	- 2,7	- 7,2
20	Negative side.....	12,3	12,8	20,0	13,3	16,8	14,8	
	Positive	11,1	14,2	19,8	11,7	17,7	12,2	
	Excess of latter...	- 1,2	+ 1,4	- 0,2	- 1,6	+ 0,9	- 2,6	- 3,3
Feb. 5	Negative side.....	16,0	16,8	22,9	16,4	20,4	16,0	
	Positive	14,9	17,2	22,5	15,4	21,3	13,4	
	Excess of latter...	- 1,1	+ 0,4	- 0,4	- 1,0	+ 0,9	- 2,6	- 3,8
13	Negative side.....	51,2	50,8	56,5	48,3	52,8	50,5	
	Positive	49,5	51,2	56,8	45,8	53,0	47,8	
	Excess of latter...	- 1,7	+ 0,4	+ 0,3	- 2,5	+ 0,2	- 2,7	- 6,0
20	Negative side.....	47,8	49,0	55,3	46,7	52,7	47,0	
	Positive	47,2	50,5	54,8	44,8	53,4	45,1	
	Excess of latter...	- 0,6	+ 1,5	- 0,5	- 1,9	+ 0,7	- 1,9	- 2,7
Mar. 5	Negative side.....	8,2	10,2	13,1	8,8	13,4	6,8	
	Positive	7,6	12,0	13,0	7,3	14,0	5,2	
	Excess of latter...	- 0,6	+ 1,8	- 0,1	- 1,5	+ 0,6	- 1,6	- 1,4
13	Negative side.....	54,1	49,2	49,2	48,0	50,8	46,4	
	Positive	53,1	49,8	49,7	47,1	51,1	45,4	
	Excess of latter...	- 1,0	+ 0,6	+ 0,5	- 0,9	+ 0,3	- 1,0	- 1,5
26	Negative side.....	25,3	17,8	18,8	16,2	20,8	15,3	
	Positive	24,8	19,0	20,0	14,8	21,5	13,7	
	Excess of latter...	- 0,5	+ 1,2	+ 1,2	- 1,4	+ 0,7	- 1,6	- 0,4
Apr. 1	Negative side.....	55,0	46,9	49,3	46,6	47,5	46,7	
	Positive	55,0	47,2	49,3	45,1	47,4	44,5	
	Excess of latter...	0,0	+ 0,3	+ 0,0	- 1,5	- 0,1	- 2,2	- 3,5

Day.	Division, &c.	*A*	*B*	*C*	*D*	*E*	*F*	Sum of Excesses.
Apr. 4	Negative side.....	17,0	10,4	9,0	11,3	10,3	9,0	
	Positive	17,0	12,0	9,5	9,8	11,8	7,8	
	Excess of latter...	0,0	+ 1,6	+ 0,5	− 1,5	+ 1,5	− 1,2	+ 0,9
9	Negative side.....	32,0	20,2	21,3	20,7	20,8	21,0	
	Positive	31,3	22,0	22,8	19,8	20,8	19,8	
	Excess of latter...	− 0,7	+ 1,8	+ 1,5	− 0,9	0,0	− 1,2	+ 0,5
22	Negative side.....	47,6	39,4	40,5	39,2	42,8	36,2	
	Positive	47,6	40,5	41,7	38,2	43,0	35,2	
	Excess of latter...	0,0	+ 1,1	+ 1,2	− 1,0	+ 0,2	− 1,0	+ 0,5
May 2	Negative side.....	3,0	53,8	54,8	54,9	57,0	51,8	
	Positive	3,2	56,4	56,0	54,2	58,8	50,8	
	Excess of latter...	+ 0,2	+ 2,6	+ 1,2	− 0,7	+ 1,8	− 1,0	+ 4,1
8	Negative side.....	16,8	6,9	7,8	9,1	8,3	3,5	
	Positive	17,8	8,1	9,0	8,7	9,7	2,8	
	Excess of latter...	+ 1,0	+ 1,2	+ 1,2	− 0,4	+ 1,4	− 0,7	+ 3,7
14	Negative side.....	30,8	18,8	18,9	20,3	19,0	18,4	
	Positive	32,1	20,8	20,5	19,0	17,9	16,7	
	Excess of latter...	+ 1,3	+ 2,0	+ 1,6	− 1,3	− 1,1	− 1,7	+ 0,8
28	Negative side.....	29,0	33,3	30,9	36,2	34,1	30,4	
	Positive	29,8	34,4	32,0	36,5	35,2	29,8	
	Excess of latter...	+ 0,8	+ 1,1	+ 1,1	+ 0,3	+ 1,1	− 0,6	+ 3,8
June 5	Negative side.....	33,0	36,0	36,2	39,5	36,8	32,3	
	Positive	33,6	38,0	37,8	39,3	38,2	31,1	
	Excess of latter...	+ 0,6	+ 2,0	+ 1,6	− 0,2	+ 1,4	− 1,2	+ 4,2
18	Negative side.....	57,7	58,3	0,0	2,6	0,0	53,9	
	Positive	58,4	59,8	0,6	1,1	0,9	53,2	
	Excess of latter...	+ 0,7	+ 1,5	+ 0,6	− 1,5	+ 0,9	− 0,7	+ 1,5
								+ 2,3
18	Negative side.....	3,2	6,6	5,4	12,0	5,4	2,8	
	Positive	4,0	8,4	7,0	11,0	6,5	1,5	
	Excess of latter...	+ 0,8	+ 1,8	+ 1,6	− 1,0	+ 1,1	− 1,3	+ 3,0
22	Negative side	56,0	0,6	0,2	60,7	58,9	58,8	
	Positive	55,9	2,1	1,0	59,4	59,8	57,0	
	Excess of latter...	− 0,1	+ 1,5	+ 0,8	− 1,3	+ 0,9	− 1,8	0,0
27	Negative side.....	29,3	33,3	34,4	35,3	33,2	35,0	
	Positive	29,6	35,8	34,7	34,6	33,9	33,5	
	Excess of latter...	+ 0,3	+ 2,5	+ 0,3	− 0,7	+ 0,7	− 1,5	+ 1,6
July 7	Negative side.....	47,0	59,0	54,6	55,7	55,8	53,2	
	Positive	48,0	61,8	55,6	55,4	57,5	52,2	
	Excess of latter...	+ 1,0	+ 2,8	+ 1,0	− 0,3	+ 1,7	− 1,0	+ 5,2

Day.	Division, &c.	*A*	*B*	*C*	*D*	E	*F*	Sum of Excesses.
July 16	Negative side.....	14,9	26,6	20,3	24,7	23,5	20,2	
	Positive	15,3	29,0	21,2	23,7	25,0	19,1	
	Excess of latter...	+ 0,4	+ 2,4	+ 0,9	- 1,0	+ 1,5	- 1,1	+ 3,1
31	Negative side.....	53,5	67,2	61,0	65,0	63,2	59,1	
	Positive	54,0	69,0	61,9	64,3	65,0	58,2	
	Excess of latter...	+ 0,5	+ 1,8	+ 0,9	- 0,7	+ 1,8	- 0,9	+ 3,4
Aug. 6	Negative side.....	38,3	50,0	44,2	48,8	45,4	43,0	
	Positive	38,7	51,7	45,0	47,7	47,1	41,5	
	Excess of latter...	+ 0,4	+ 1,7	+ 0,8	- 1,1	+ 1,7	- 1,5	+ 2,0
17	Negative side.....	41,2	53,8	45,8	51,3	47,4	45,8	
	Positive	41,0	54,8	46,2	50,4	48,8	45,0	
	Excess of latter...	- 0,2	+ 1,0	+ 0,4	- 0,9	+ 1,4	- 0,8	+ 0,9
23	Negative side.... .	33,3	44,1	39,8	42,8	38,2	37,0	
	Positive	33,6	46,2	39,3	41,3	39,0	36,5	
	Excess of latter...	+ 0,3	+ 2,1	- 0,5	- 1,5	+ 0,8	- 0,5	+ 0,7
30	Negative side.....	19,3	31,0	23,5	26,2	24,2	23,0	
	Positive	19,0	32,0	24,9	25,5	25,1	21,5	
	Excess of latter...	- 0,3	+ 1,0	+ 1,4	- 0,7	+ 0,9	- 1,5	+ 0,8
Sept. 2	Negative side.....	10,0	20,2	14,0	17,1	14,2	13,2	
	Positive	9,9	21,8	15,7	16,1	16,0	11,9	
	Excess of latter...	- 0,1	+ 1,6	+ 1,7	- 1,0	+ 1,8	- 1,3	+ 2,7
10	Negative side.....	34,3	44,9	40,0	41,0	40,3	38,6	
	Positive	35,0	46,3	41,0	40,0	40,6	37,8	
	Excess of latter...	+ 0,7	+ 1,4	+ 1,0	- 1,0	+ 0,3	- 0,8	+ 1,6
24	Negative side	39,3	48,9	43,3	46,0	44,5	44,7	
	Positive	40,0	51,1	44,1	45,1	45,4	42,8	
	Excess of latter...	+ 0,7	+ 2,2	+ 0,8	- 0,9	+ 0,9	- 1,9	+ 1,8
Oct. 4	Negative side.....	26,3	37,4	29,0	32,2	31,4	31,2	
	Positive	26,8	38,9	30,4	31,2	32,3	29,8	
	Excess of latter...	+ 0,5	+ 1,5	+ 1,4	- 1,0	+ 0,9	- 1,4	+ 1,9
16	Negative side.....	23,0	33,3	25,4	28,0	29,3	27,7	
	Positive	21,8	35,2	26,0	27,0	29,8	26,1	
	Excess of latter...	- 1,2	+ 1,9	+ 0,6	- 1,0	+ 0,5	- 1,6	- 0,8
Nov. 1	Negative side.....	56,1	65,9	62,1	61,8	61,4	60,3	
	Positive	56,0	67,1	62,6	60,3	61,6	59,2	
	Excess of latter...	- 0,1	+ 1,2	+ 0,5	- 1,5	+ 0,2	- 1,1	- 0,8
29	Negative side.....	14,7	24,7	17,8	18,9	20,1	18,6	
	Positive	13,8	26,1	18,8	17,5	21,7	17,3	
	Excess of latter...	- 0,9	+ 1,4	+ 1,0	- 1,4	+ 1,6	- 1,3	+ 0,4

Day.	Division, &c.	*A*	*B*	*C*	*D*	*E*	*F*	Sum of Excesses.
Dec. 11	Negative side.....	52,4	57,8	59,7	55,8	56,3	55,0	
	Positive	51,8	58,8	60,0	54,3	57,2	53,8	
	Excess of latter...	- 0,6	+ 1,0	+ 0,3	- 1,5	+ 0,9	- 1,2	- 1,1
18	Negative side.....	57,1	63,5	62,1	60,2	62,6	61,5	
	Positive	57,5	65,0	62,3	58,8	63,8	59,6	
	Excess of latter...	+ 0,4	+ 1,5	+ 0,2	- 1,4	+ 1,2	- 1,9	0,0
29	Negative side.....	35,1	42,8	43,0	39,9	42,6	40,9	
	Positive	35,5	44,6	43,6	38,8	43,4	39,4	
	Excess of latter ..	+ 0,4	+ 1,8	+ 0,6	- 1,1	+ 0,8	- 1,5	+ 1,0

The concluded circle reading in the *twelfth column* is the mean of the microscope readings with all the above corrections applied. It is, therefore, the reading of the circle, supposing the microscopes to be in accurate adjustment for runs, and the object to have been observed with the fixed wire as it passed the middle vertical wire. For Polaris and δ Ursæ Minoris the concluded reading applies to the time of meridian passage.

The *thirteenth column* contains the initial of the observer's name. The observations marked *C* are by myself, and those marked *G* by Mr Glaisher.

CALCULATION OF GEOCENTRIC NORTH POLAR DISTANCES.

The columns of the right hand pages exhibit, first, the Apparent Zenith Distances deduced immediately from the concluded circle readings, and then the Geocentric North Polar Distances of the fixed stars and centers of the moving bodies, together with the elements of the calculations by which the latter are derived from the Apparent Zenith Distances.

The mean between the two concluded readings of a double observation is the reading corresponding to one or the other horizontal position of the telescope, and, increased or diminished, as the position may require, by 90°, gives the reading when the telescope is vertical and object-glass upwards. The readings thus determined, which for shortness are called "zenith points," are placed in the *first column*. As the zenith points are found to be discordant with each other, a mean zenith point is adopted for forming the zenith distances of all observations included within certain limits, and is placed, with the date of its commencement, at the bottom of the page. The adopted zenith point has been deduced from the several zenith points of the series to which it applies, by the same rule as in preceding years, viz. "by dividing the stars observed by reflexion and directly into three groups, one comprehending stars near the zenith, and the others comprehending the stars far from the zenith, north and south respectively: the mean of the zenith points given by each group is considered as one result, and the mean of the three results is adopted for the zenith point." As far as is practicable, the groups are made each to contain nearly the same number of zenith points.

The limits between which the same adopted zenith point is used, include all observations in the course of which no considerable variation of the separate zenith points, distinct from the discordance above mentioned, can be recognized. Usually they are determined by changes arising from instrumental adjustments: but it also happens that gradual changes from unknown causes make the adoption of a new zenith point necessary. Every known cause of a change is mentioned where it occurs.

The *second column* contains the apparent zenith distance. This, or its supplement, according as the observation is direct or by reflexion, is obtained by subtracting algebraically the adopted zenith point from the circle reading of column 12, left hand page, and, if the remainder be greater than 180°, adding to it when negative and subtracting from it when positive, 360°. The object is south or north of the zenith according as the result is in either case positive or negative.

The four next columns contain the materials for the calculation of *refraction*. The *third column* has the height of the barometer, as shewn by a cistern-barometer constructed by Dollond, and attached to the circle pier. The lower surface of the mercury is raised by a screw pressing the bag till the light seen below a brass edge is excluded; and a brass slider is brought to the upper surface to shut out the light in the same way. The *fourth column* has the reading of the thermometer whose bulb is plunged in the cistern of the barometer.

As it appeared by a comparison of this with six other barometers, (the particulars of which are given in the Volume for 1835, p. xxxi.) that its readings were too small by 0,1 inch nearly, the height immediately read from the barometer, which is that recorded in column 3, has always been increased by that quantity in calculating the refraction.

The *fifth column* has the mean of the readings of the two free thermometers. These thermometers are carried by jointed arms attached to the top of the pier, one at the North the other at the South end, and are nearly on a level with the upper limb of the circle. Precautions have been taken to ensure the free passage of air by the thermometer bulbs, and to protect them from radiation. When the Sun is near the meridian, the thermometers are turned from its rays by means of the jointed arms. All but the lowest shutters of the circle-room are kept open before and during observations, except when it is occasionally necessary for obtaining reflexion observations to close them partially a few minutes, on account of the disturbance of the mercury by the wind. Thus there is generally a strong current of air past the thermometers; and as the observing lamps are removed from the room when not in use, it may be presumed that the interior temperature is very little different from the exterior*.

The refraction in the *sixth column* is calculated by Bessel's tables. (*Tabulæ Regiomontanæ*, p. 538, &c.) The same form of the tables was made use of as in former years to July 13, after which the form given as an Appendix to the *Greenwich Observations* of 1836 was adopted, as being more expeditious, and having been found in a variety of instances to give almost exactly the same results as the other method.

The *seventh column* contains the parallax. If r and D be respectively the lines from the center of the Earth to the place of observation and object observed, z the angle they make with each other, and p the parallax; then $\sin p = \frac{r}{D} \sin z$. Also, r' being the Earth's equatoreal radius, and D' the mean distance of the Sun from the Earth, we have identically

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* See Introduction to Volume for 1835, p. xxxiii.

$$\frac{r}{D} = \frac{r}{r'} \times \frac{r'}{D'} \times \frac{D'}{D}.$$

In computing the parallax for the Sun and planets, $\log \frac{r}{r'}$ is taken $= 9,9990916$, which supposes the ratio of the Earth's axis to be that of 297 to 298; $\log \frac{r'}{D'} = 0,9333607$, the assumed value of the Sun's equatoreal horizontal parallax at the mean distance being $8'',5776$; $\log \frac{D'}{D}$ is the arithmetical complement of the log of distance given in the Nautical Almanac; $\sin p$ is considered equal to p; and z is found by subtracting $11'.12''$, the angle of the vertical given by the above ratio of the axes, from the observed zenith distance. The formula used for computing the parallax of the Moon's limbs is

$$\sin p = \frac{r}{r'} \sin (P + a) \sin z,$$

where P is the equatoreal horizontal parallax, which is interpolated with second differences from the Nautical Almanac, and a is a small correction introduced by finding exactly the parallax of the limb, that is, the angle made by a tangent to the highest or lowest point of the Moon's surface, as seen from the place of observation, with a tangent to the highest or lowest point, as seen from the Earth's center. In using the above formula, the sine is not considered equal to the arc. The other elements of the calculation are the same as for the planets.

For the calculation of a, which is dependent on the zenith distance, I must refer to the *Cambridge Observations*, Vol. IV., for 1831, p. 147. The following is a table of its values, for the North and South Limbs, and for different zenith distances.

Zenith Distance.	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°
Corr. for N.L.	− 0″,03	− 0″,04	− 0″,05	− 0″,06	− 0″,06	− 0″,07	− 0″,08	− 0″,08	− 0″,09	− 0″,09	− 0″,09
Corr. for S.L.	+ 0,10	+ 0,11	+ 0,12	+ 0,12	+ 0,13	+ 0,14	+ 0,15	+ 0,15	+ 0,16	+ 0,16	+ 0,16

The *eighth column* contains the micrometer reading, when one limb of a planet is observed with the micrometer wire, and the other on the fixed wire.

The *ninth column* contains the semidiameters of the Sun and Moon, and of the planets when the discs are of measurable magnitude. The Sun's semidiameter is taken from the Meridian Ephemeris: the Moon's is interpolated with second differences from the Nautical Almanac. The apparent diameters of Mars, Jupiter, and Saturn in the vertical direction, are given by the micrometer readings of column 8, treated in the same manner as those on the left hand page, and the semidiameters of column 9 are found by merely halving the results.

For Venus the micrometer reading of column 8 gives the difference of N.P.D. of the N. or S. limb and the extreme illumined point of the opposite limb, whence the semidiameter is deduced in the manner following. From the spherical triangle which has its angles at P the pole of the equator, V the geocentric place of Venus, and S the geocentric place of the Sun, at the time of observation, the angle (θ) made by the line joining the extreme illumined points of the planets periphery with the circle of declination through her center is first derived, this angle being equal to the difference of $\angle PVS$ and 90°. Then, Δ being the above mentioned difference of N.P.D. converted into arc, if Venus is horned, semidiameter $= \frac{\Delta}{2} \sec^2 \frac{\theta}{2}$. But if Venus be gibbous, which was the case from the observation on June 17 to the end of the year, the semidiameter is calculated by the following formulæ:

$$\sin \theta' = \frac{R}{r} \sin SV \sin \theta, \qquad \text{Semidiameter} = \frac{\Delta}{2} \sec^2 \frac{\theta'}{2};$$

the arc SV being calculated from the triangle PSV, and the logarithms of R and r, which are respectively the distances of the Earth and Venus from the Sun, being taken from the Nautical Almanac. The calculated semidiameter is set down in column 9. When it happened that the deficient limb was observed on the fixed wire, the value employed for deducing the N.P.D. of the center, is this semidiameter diminished by the excess of the calculated above the measured diameter.

On Feb. 16 and 20, and on March 6 and 7, the cusps were too sharp to admit of satisfactory observation, and on Oct. 29 the micrometer reading was omitted by mistake. The values of the semidiameter used on these days were adopted on the following considerations. Let $s =$ the semidiameter by observation on any day when the distance of Venus from the Earth was r, the mean distance of the Earth from the Sun being taken $= 1$. Then if $S =$ the true semidiameter of Venus at the unit of distance, and, as there is reason to think the semidiameter by observation may be affected by a constant error, if we suppose $s + e$ to be the true semidiameter at distance r, we shall have $\frac{s+e}{S} = \frac{1}{r}$, or $rs = S - re$. By this formula 78 equations were formed from the 78 observations of Venus's diameter, the results of which are collected in page (18). As the planet passed through conjunction in the first half of the year and through opposition in the other half, the sums of the two halves of the equations were made to furnish two mean equations involving the unknown quantities S and e, from which it was found that $S = 8'',47$ and $e = -0'',47$. The tabular value of the semidiameter at the unit of distance $= 8'',25$. Hence by these observations *the tabular semidiameter of Venus at the unit of distance is 0″,22 in defect.* The values adopted on the days above mentioned were first calculated from the mean value 8″,47 at the unit of distance, and then increased by 0″,47 the mean error of observation, to be in accordance with the semidiameter as given by observation.

The geocentric N.P.D. of the center in the *tenth column* is deduced from each observation by applying to the apparent zenith distance of column 2, the corrections for refraction, parallax, and semidiameter, and adding 37°. 47′. 8″,28, the assumed colatitude of the Observatory. (The negative sign denotes that the object, when observed, was below the pole.) The result is, therefore, the N.P.D. of the center of the object as viewed from the Earth's center, at the time of passing the middle wire, affected by uncorrected instrumental errors and errors of observation, as also by any errors in the assumed values of the constants employed in the calculations.

The pages immediately following those whose contents have now been explained, contain as follows:

1°. *Mean North Polar Distances of Stars observed in* 1838, *as deduced from each day's observation,* in pages (2)—(11). These mean N.P.D. are referred to the beginning of the year, and are deduced from the apparent N.P.D. in column 10, right hand page, of the *Zenith Distances observed* &c., by applying corrections obtained by the following methods. For stars included in the list of the Nautical Almanac, the corrections added to the apparent N.P.D., are found by subtracting the mean declinations (Jan. 1, 1838) in that work, from the apparent declinations derived from the same work by interpolating for the times of observation. For stars not in the Nautical Almanac, but included in the Catalogue of the Royal Astronomical Society, the corrections added to the apparent N.P.D. are calculated by the formula, $Aa' + Bb' + Cc' + Dd'$. Log A, log B, log C, log D, are taken from the Nautical Almanac; and log a', log b', log c', log d', from the Society's Catalogue. For stars not in that Catalogue, the corrections (also added to the apparent N.P.D.) are calculated by the following formula, depending on the expressions for a', b', c', d', given in p. xvii. of the Preface:

$$\text{Correction} = A \times (N^{o}.\,log = 9{,}6375) \times sin\ N.P.D. - A\,.\,sin\ Æ\ cos\ N.P.D.$$
$$+\ B\ cos\ Æ\ cos\ N.P.D. + C \times (N^{o}.\,log = 1{,}3020)\ cos\ Æ - D\ sin\ Æ.$$

Where the resulting mean N.P.D. is included in brackets, no use is made of it in deducing the concluded mean.

The results by the same star, when observed above and when below the pole, are arranged separately to serve for correcting the assumed colatitude. Also, the results by direct observations are separated from those by reflexion observations of the same star, for the purpose of exhibiting the effect of the discordance of zenith points before spoken of, and furnishing data for applying a correction. The two sets of double observations of Polaris taken on May 1 at the same transit, are treated as independent observations.

2°. *Catalogue of the Concluded Mean North Polar Distances, Jan.* 1, 1838, *with the Annual Variations,* in pages (12) and (13). The concluded mean is the mean (corrected as stated below) of all the preceding mean N.P.D.; and the annual variations are taken from the Astronomical Society's Catalogue, or are computed by the formula there used.

The corrections applied to the mean of all the different determinations of mean N.P.D., to obtain the concluded mean, are for error of assumed colatitude and for discordance of zenith points. The former correction is derived from a new determination of the colatitude of the Observatory, calculated from all the observations of the same stars above and below pole which were made in the years 1836, 1837 and 1838. The following tables exhibit the elements of the calculation.

1°. *Observations in* 1836.

Name of Star and Mode of Observation.	No. of Direct and Reflected Observations.	N.P.D. on assumed Colatitude.	No. of Observations separately above and below Pole.	Seconds of Concluded N.P.D.	Sum of the two results.	Adopted Weight.	Product of Weight and Sum.
		° ′ ″		″	″		″
α Cassiopeiæ D..........	5	34 . 21 . 47,14	10	47,21	+ 1,05	74	+ 77,70
.... R..........	5	47,27					
α Cassiopeiæ SP. D. ...	8	- 34 . 21 . 46,26	16	- 46,16			
.... R. ...	8	46,05					
γ Cassiopeiæ D..........	6	30 . 10 . 22,51	12	22,49	+ 1,12	60	+ 67,20
.... R..........	6	22,47					
γ Cassiopeiæ SP. D. ...	2	- 30 . 10 . 21,01	4	- 21,37			
.... R. ...	2	21,72					
Polaris D.	22	1 . 33 . 55,35	36	55,39	- 0,11	2079	- 228,69
.... R.	14	55,44					
Polaris SP. D............	54	- 1 . 33 . 55,67	108	- 55,50			
.... R	54	55,33					

1°. *Observations in* 1836, *continued.*

Name of Star and Mode of Observation.	No. of Direct and Reflected Observations.	N.P.D. on assumed Colatitude.	No. of Observations separately above and below Pole.	Seconds of Concluded N.P.D.	Sum of the two results.	Adopted Weight.	Product of Weight and Sum.
		° ′ ″		″	″		″
α Ursæ Majoris D......	14	27 . 21 . 54,97	28	54,96	+ 0,16	292	+ 46,72
..............R.......	14	54,94					
α Ursæ Majoris SP. D.	10	− 27 . 21 . 55,16	20	− 54,80			
.... R.	10	54,44					
γ Ursæ Majoris D......	7	35 . 23 . 36,26	14	36,21	+ 0,65	38	+ 24,70
.... R. ...	7	36,15					
γ Ursæ Majoris SP. D.	3	− 35 . 23 . 35,89	6	− 35,56			
.... R.	3	35,22					
β Ursæ Minoris D......	6	15 . 10 . 27,88	12	27,62	− 0,37	240	− 88,80
.... R......	6	27,36					
β Ursæ Minoris SP. D.	4	− 15 . 10 . 28,05	8	− 27,99			
....................R.	4	27,93					
α Cephei D...............	28	28 . 6 . 26,20	56	26,23	0,00	46	0,00
.... R...............	28	26,26					
α Cephei SP. D.........	1	− 28 . 6 . 26,35	2	− 26,23			
.... R..........	1	26,10					
β Cephei D.	9	20 . 9 . 29,37	18	29,29	+ 0,30	72	+ 21,60
.... R.	9	29,21					
β Cephei SP. D.........	1	− 20 . 9 . 29,04	2	− 28,99			
.... R..........	1	28,94					

2°. *Observations in* 1837.

Name of Star and Mode of Observation.	No. of Direct and Reflected Observations.	N.P.D. on assumed Colatitude.	No. of Observations separately above and below Pole.	Seconds of Concluded N.P.D.	Sum of the two results.	Adopted Weight.	Product of Weight and Sum.
		° ′ ″		″	″		″
α Cassiopeiæ D..........	6	34 . 21 . 28,33	12	27,93	+ 0,36	36	+ 12,96
.... R..........	6	27,53					
α Cassiopeiæ SP. D....	2	− 34 . 21 . 29,21	4	− 27,57			
.... R....	2	25,92					

2°. *Observations in* 1837, *continued.*

Name of Star and Mode of Observation.	No. of Direct and Reflected Observations.	N.P.D. on assumed Colatitude.	No. of Observations separately above and below Pole.	Seconds of Concluded N.P.D.	Sum of the two results.	Adopted Weight.	Product of Weight and Sum.
		° ′ ″		″	″		″
Polaris D.	30	1 . 33 . 36,56	58	36,39	+ 0,46	3330	+ 1531,80
.... R.	28	36,22					
Polaris SP. D............	85	- 1 . 33 . 35,93	170	- 35,93			
.... R.	85	35,92					
α Ursæ Majoris D......	19	27 . 22 . 14,79	38	14,95	+ 1,00	281	+ 281,00
.... R......	19	15,11					
α Ursæ Majoris SP. D.	8	- 27 . 22 . 13,49	16	- 13,95			
.... R.	8	14,40					
α Draconis D...........	1	24 . 50 . 36,07	2	36,10	+ 0,76	40	+ 30,40
.... R............	1	36,13					
α Draconis SP. D.......	2	- 24 . 50 . 35,16	4	- 35,34			
.... R......	2	35,51					
β Ursæ Minoris D. ...	17	15 . 10 . 42,20	34	42,18	- 0,23	179	- 41,17
.... R. ...	17	42,17					
β Ursæ Minoris SP. D.	2	- 15 . 10 . 43,62	4	- 42,41			
.... R.	2	41,20					
ζ Ursæ Minoris D......	5	11 . 42 . 28,08	10	28,08	+ 0,18	280	+ 50,40
.... R......	5	28,08					
ζ Ursæ Minoris SP. D.	5	- 11 . 42 . 27,79	10	- 27,90			
.... R.	5	28,00					
η Draconis D...........	5	28 . 6 . 55,47	10	54,70	- 0,93	107	- 99,51
.... R............	5	53,92					
η Draconis SP. D.......	4	- 28 . 6 . 55,84	8	- 55,63			
.... R.......	4	55,42					
δ Ursæ Minoris D......	18	3 . 24 . 36,46	36	36,57	+ 0,11	571	+ 62,81
.... R.......	18	36,67					
δ Ursæ Minoris SP. D.	5	- 3 . 24 . 36,44	10	- 36,46			
.... R.	5	36,47					
γ Cephei D.	5	13 . 16 . 37,64	10	37,61	+ 0,07	270	+ 18,90
.... R..............	5	37,57					
γ Cephei SP. D.........	5	- 13 . 16 . 38,09	10	- 37,54			
.... R.........	5	36,98					

3°. *Observations in* 1838.

Name of Star and Mode of Observation.	No. of Direct and Reflected Observations.	N.P.D. on assumed Colatitude.	No. of Observations separately above and below Pole.	Seconds of Concluded N.P.D.	Sum of the two results.	Adopted Weight.	Product of Weight and Sum.
		° ′ ″		″	″		″
α Cassiopeiæ D..........	6	34 . 21 . 8,13	12	7,92	+ 1,26	21	+ 26,46
.... R..........	6	7,72					
α Cassiopeiæ SP. D. ...	1	− 34 . 21 . 7,71	2	− 6,66			
.... R. ...	1	5,62					
Polaris D.	25	1 . 33 . 16,46	49	16,62	+ 0,19	1827	+ 347,13
...... R.	24	16,79					
Polaris SP. D............	23	− 1 . 33 . 16,32	46	− 16,43			
.... R............	23	16,54					
α Ursæ Majoris D......	30	27 . 22 . 33,89	60	34,04	+ 0,05	136	+ 6,80
.... R......	30	34,20					
α Ursæ Majoris SP. D.	3	− 27 . 22 . 33,98	6	− 33,99			
.... R.	3	34,01					
γ Ursæ Majoris D......	15	35 . 24 . 16,01	30	15,80	+ 1,16	17	+ 19,72
.... R......	15	15,59					
γ Ursæ Majoris SP. D.	1	− 35 . 24 . 14,41	2	− 14,64			
.... R.	1	14,86					
β Ursæ Minoris D......	13	15 . 10 . 57,08	26	57,19	+ 0,58	93	+ 53,94
.... R......	13	57,30					
β Ursæ Minoris SP. D.	1	− 15 . 10 . 55,79	2	− 56,61			
...................R.	1	57,43					
ζ Ursæ Minoris D......	11	11 . 42 . 38,82	22	38,92	+ 0,69	329	+ 227,01
.... R......	11	39,02					
ζ Ursæ Minoris SP. D.	4	− 11 . 42 . 38,14	8	− 38,23			
.... R.	4	38,31					
η Draconis D............	3	28 . 7 . 3,11	6	2,89	− 0,35	58	− 20,30
.... R............	3	2,66					
η Draconis SP. D.......	2	− 28 . 7 . 4,10	4	− 3,24			
.... R.......	2	2,37					

3°. *Observations in* 1838, *continued.*

Name of Star and Mode of Observation.	No. of Direct and Reflected Observations.	N.P.D. on assumed Colatitude.	No. of Observations separately above and below Pole.	Seconds of Concluded N.P.D.	Sum of the two results.	Adopted Weight.	Product of Weight and Sum.
		° ′ ″		″	″		″
δ Ursæ Minoris D......	15	3 . 24 . 34,69	30	34,44	+ 0,12	697	+ 83,64
.... R......	15	34,19					
δ Ursæ Minoris SP. D.	7	− 3 . 24 . 34,86	14	− 34,32			
.... R.	7	33,77					
α Cephei D..............	13	28 . 5 . 56,84	26	56,89	+ 0,53	45	+ 23,85
.... R..............	13	56,94					
α Cephei SP. D........	1	− 28 . 5 . 56,85	2	− 56,36			
.... R........	1	55,86					
β Cephei D..............	12	20 . 8 . 58,33	24	58,16	+ 0,75	74	+ 55,50
.... R..............	12	57,99					
β Cephei SP. D........	1	− 20 . 8 . 58,65	2	− 57,41			
.... R........	1	56,16					
ι Cephei D..............	3	24 . 39 . 2,09	3	2,09	+ 0,16	51	+ 8,16
.... R..............	0						
ι Cephei SP. D........	2	− 24 . 39 . 1,55	4	− 1,93			
.... R........	2	2,31					
γ Cephei D..............	4	13 . 16 . 17,36	8	17,36	+ 0,02	144	+ 2,88
.... R..............	4	17,36					
γ Cephei SP. D........	2	− 13 . 16 . 17,71	4	− 17,34			
.... R........	2	16,96					

The colatitude assumed in the calculation of all the above N.P.D. is 37°. 47′. 8″,43. The N.P.D. of 1836 and 1837 are taken immediately from the Catalogues of Concluded Mean N.P.D. Jan. 1, contained in the Volumes for those years, excepting that the N.P.D. of 1837 found by SP observations are diminished by 0″,30, it having been discovered that the correction 0″,15 was by mistake applied in these observations with a wrong sign. The N.P.D. of 1838 are those which would have been given in the Catalogue of Concluded N.P.D. Jan. 1, contained in pages (12) and (13) of this Volume, if the same value of the colatitude had been used as in the two preceding years.

The observations being supposed correct, if the assumed colatitude ought to be increased by x'', the sum of the N.P.D. of a given star by the observations above and under the pole will be $-2x$. Hence each quantity in the columns headed 'Sum of the two results' gives a value of x. The weight attributed to each determination is calculated in the following manner. If a be the number of observations above and b the number below the pole, the weight so far as it depends on the number of observations, is taken to be $\frac{ab}{a+b}$. It is also considered that an SP observation of a star of 40° N.P.D., would be of no value for the determination of colatitude, and, as the correction for refraction is less uncertain the higher the altitude, that for every decrease of N.P.D. by 1°, the weight increases 2. Hence if $\Delta =$ the star's N.P.D. in degrees, the adopted weight $= \frac{2ab}{a+b}(40 - \Delta)$.

If the sum of the numbers in the last column for any one year be divided by the sum of the numbers in the last but one, the quotient equated to $-2x$ will give the value of x as determined by the observations of that year. In this way it will be found that by the observations of 1836, x is equal to $+0'',01$, by those of 1837, to $-0'',18$, and by those of 1838, to $-0'',12$. By giving to these results weights proportional to the sums of the weights of the respective years, the final correction is $-0'',11$, and the corrected colatitude is $37^{\circ}.47'.8'',32$.

The number of observations employed in the above determination is 1190; the number employed in the determination of the assumed colatitude was 917. Supposing the weights of the two to be proportional to these numbers, the concluded colatitude will be $37^{\circ}.47'.8'',37$. This value is adopted in the present Volume.

Hence as all the calculations of Geocentric North Polar Distances were made with the value of the colatitude printed in the skeleton forms, viz. $37^{\circ}.47'.8'',28$, the correction $+0'',09$ is applied algebraically to the mean N.P.D. for error of colatitude, the N.P.D. being considered negative when the star is observed below the pole.

The correction for discordance of zenith points is applied on the following principle. The discordance is of such a nature, that the circle reading for zenith point is in general less by a star observed south of the zenith than by a star observed north of the zenith. Apparently when the object-glass is to the south of zenith, the telescope, whether directed to the heavens or the trough of mercury, requires to be turned for bisecting an object, a little farther in the direction of the graduation, than if the cause of inequality did not exist; and when the object-glass is to the north of zenith, a little in the contrary direction. Whatever be the law of the discordance, it may be presumed that the zenith point, adopted according to the rule in page xlvii, is very nearly that which would be found if there were no discordance. Hence, if M be the adopted zenith point, and Z the zenith point resulting from a particular double observation south of zenith, $M - Z$ is the error of the circle reading in defect, both for the reflexion and the direct observation, supposing both to be equally affected by the inequality. By this quantity the N.P.D. is too small as determined by the direct observation, and too great as determined by the reflexion observation; so that the excess of the latter determination above the other is twice $M - Z$. These inferences apply to observations north of the zenith, by taking $M - Z$ a negative quantity when Z is greater than M, and the N.P.D. negative when the star is observed below the pole. The following table exhibits for each star observed directly and by reflexion, the mean value of $M - Z$, derived from the lists in pages (2)—(11), by halving the algebraic excess of the mean of the N.P.D. by reflexion above the mean of the corresponding N.P.D. by direct vision.

Mean excess for each Star of the Adopted Zenith Point above the Zenith Points given by Observation.

Star's Name.	Zen. Dist.	No. of Obs.	Means of M − Z.
	° ′		″
γ Ursæ Majoris SP.	− 73 . 11	1	− 0,48
α Cassiopeiæ SP...	72 , 8	1	+ 0,82
υ Ursæ Majoris SP.	67 . 59	3	− 0,97
31 Camelopardi SP.	67 . 57	1	+ 0,58
η Cephei SP......	66 . 34	3	− 0,03
α Lyncis SP......	66 . 14	1	− 0,08
η Draconis SP.....	65 . 54	2	+ 0,70
α Cephei SP......	65 . 53	1	+ 0,33
α Ursæ Majoris SP.	65 . 10	3	− 0,18
ε Cassiopeiæ SP....	64 . 55	3	− 0,61
ι Cephei SP.......	62 . 26	2	− 0,49
ζ Draconis SP.....	61 . 52	3	− 0,93
δ Draconis SP.....	60 . 25	1	− 0,16
β Cephei SP......	57 . 56	1	+ 1,28
κ Draconis SP.....	57 . 6	1	+ 0,29
β Ursæ Minoris SP.	52 . 58	1	− 0,65
γ Cephei SP......	51 . 3	2	+ 0,58
κ Cephei SP......	50 . 34	2	+ 1,53
ζ Ursæ Minoris SP.	49 . 30	4	+ 0,13
δ Ursæ Minoris SP.	41 . 12	7	+ 0,69
Polaris SP........	39 . 20	23	− 0,07
λ Ursæ Minoris...	36 . 36	2	− 1,00
Polaris............	36 , 14	24	+ 0,09
δ Ursæ Minoris...	34 . 23	15	− 0,38
ε Ursæ Minoris...	30 . 5	1	+ 0,10
ζ Ursæ Minoris...	26 . 4	11	− 0,14
γ Cephei.........	24 . 31	4	− 0,26
β Ursæ Minoris...	22 . 36	13	− 0,17
β Cephei.........	17 . 38	12	− 0,49
α Ursæ Majoris...	10 . 25	30	− 0,21
α Cephei.........	9 . 41	13	− 0,32
η Draconis........	9 . 40	3	− 0,60
γ Cassiopeiæ	7 . 37	4	− 0,52
α Cassiopeiæ	3 . 26	6	− 0,59
γ Ursæ Majoris...	− 2 . 23	15	− 0,58
η Ursæ Majoris....	+ 2 . 5	6	− 0,24
α Persei..........	2 . 56	5	− 0,33
ι Ursæ Majoris....	+ 3 . 33	3	− 0,09
	° ′		″
Capella............	+ 6 . 23	15	− 0,06
α Cygni...........	7 . 31	12	− 0,37
β Persei..........	11 . 53	3	+ 0,84
α Lyræ............	13 . 35	38	+ 0,22
β Lyræ...........	19 . 2	4	+ 0,65
Castor............	19 . 59	3	− 0,10
β Tauri...........	23 , 45	11	+ 1,03
Pollux............	23 . 48	10	+ 0,39
α Andromedæ......	24 . 1	1	− 0,17
α Coronæ Borealis.	24 . 57	7	+ 0,07
η Tauri...........	28 . 37	6	+ 0,65
α Arietis..........	29 . 31	4	+ 1,10
μ Geminorum.....	29 , 37	1	+ 0,80
γ Leonis..........	31 , 33	2	+ 0,81
Arcturus..........	32 . 11	13	+ 0,55
η Bootis..........	33 . 0	4	− 0,70
Aldebaran.........	36 . 2	7	+ 0,81
β Leonis..........	36 . 44	7	+ 0,33
α Pegasi	37 . 53	11	+ 0,36
Regulus	39 . 27	11	− 0,17
α Ophiuchi.......	39 . 32	2	+ 0,60
γ Aquilæ..........	41 . 59	3	+ 0,25
α Aquilæ..........	43 , 46	9	− 0,16
α Orionis..........	44 . 51	2	− 0,56
α Serpentis........	45 . 16	4	+ 0,28
β Aquilæ..........	46 . 12	4	+ 1,00
Procyon...........	46 . 35	8	− 0,03
α Ceti.............	48 . 46	2	+ 0,03
δ Orionis..........	52 . 38	5	+ 0,49
α Aquarii..........	53 , 19	2	+ 0,21
δ Ophiuchi........	55 , 29	3	+ 0,13
β Aquarii.........	58 . 30	8	+ 0,18
α Hydræ..........	60 . 10	2	+ 0,31
Rigel.............	60 . 37	3	+ 0,83
β Libræ..........	61 . 0	5	+ 0,77
Spica.............	62 . 32	7	+ 0,03
α^1 Libræ..........	67 . 32	4	+ 0,01
α^2 Libræ..........	+ 67 . 35	5	− 0,14

From the preceding table, the one subjoined of corrections to be applied to N.P.D. observed directly, was deduced as follows. The above mean values of $M - Z$ were divided into groups the limits of which, (indicated by the lines across,) were chosen so that the stars of each group do not greatly differ in zenith distance. Each mean value in a group was multiplied by the number of observations by which it was determined, and the corresponding zenith distance by the same number. The sum of each series of products being divided by the whole number of observations in the group, the resulting value of $M - Z$ was considered to belong to the resulting zenith distance. A line of abscissæ was then drawn on which these zenith distances were set off, and the corresponding values of $M - Z$ being taken for ordinates, a curve was traced by hand among the points thus determined, so as to approach nearer to any point, the greater the number of observations by which its position was assigned*. Ordinates of this curve were then measured at intervals of 5°, and the measures with the corresponding N.P.D tabulated as follows, to serve for correcting by interpolation at any proposed N.P.D. From what has been already said, the sign of the correction for a direct observation is the same as that of $M - Z$, or the ordinate of the curve.

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* The form of the curve thus found closely resembles that obtained in the same manner from the observations of 1837, but its position with reference to the origin of co-ordinates is different. If $y = \phi(x)$ be the equation of the former, the other is nearly represented by $y + \beta = \phi(x + \alpha)$. I am at a loss to account for this change, unless it be owing to a more unequal distribution of the observations North and South of the zenith than in the preceding year. As in 1837, the Telescope retained the same position on the Circle throughout the year.

Corrections for Discordance of Zenith Points, to be added algebraically to N.P.D. by direct Observations, 1838.

N.P.D.	Correction.	N.P.D.	Correction.	N.P.D.	Correction.
°	″	°	″	°	″
- 40	- 0,27	+ 15	- 0,28	+ 70	+ 0,46
35	- 0,24	20	- 0,32	75	+ 0,31
30	- 0,19	25	- 0,35	80	- 0,02
25	- 0,11	30	- 0,37	85	- 0,03
20	+ 0,03	35	- 0,38	90	+ 0,12
15	+ 0,17	40	- 0,31	95	+ 0,25
10	+ 0,22	45	- 0,11	100	+ 0,33
- 5	+ 0,18	50	+ 0,17	105	+ 0,36
0	- 0,01	55	+ 0,42	110	+ 0,38
+ 5	- 0,16	60	+ 0,53	115	+ 0,38
+ 10	- 0,22	+ 65	+ 0,52	+ 120	+ 0,38

The corrections to N.P.D. obtained by reflexion observations are the same with contrary signs.

The interpolations for finding the corrections for proposed N.P.D. from the above table, were performed, whenever it appeared necessary, with second differences.

3°. *Sidereal Intervals occupied by transits of the Diameters of the Sun, Moon, Jupiter, and Saturn's Ring,* from the Transit observations, and *Vertical Diameters of the Sun, Moon, Venus, Jupiter, and Saturn,* from the Circle observations, *compared with the same from the Nautical Almanac,* in pages (16)—(20).

The Sidereal Intervals are the differences of the concluded transits of the first and second limbs over the mean of the seven wires, corrected in the case of the Moon, for the defect of illumination of one of the limbs by the quantities stated in the notes to the Transits. The rule by which this correction has been calculated (given in the Introduction of the Cambridge Observations of 1835, p. xv.) is, to ascertain the Moon's distance in

R.A. from the point of opposition to the Sun, and multiply this distance by the cosine of the Sun's declination, in order to obtain the length of the arc of a great circle drawn perpendicularly from the Sun's place on the meridian through the Moon's place. The required correction, to be added to the difference of the concluded transits, is then the versed sine of this arc on the Moon's surface.

The Vertical Diameters of the Sun and Moon by observation, are the differences of the zenith distances, corrected for refraction and parallax, of the North and South limbs, deficiency of illumination being allowed for in the case of the Moon, as explained in page xli. Consequently they are true geocentric diameters, the effect of applying these corrections to the limbs being to reduce their places to those in which they would be seen from the Earth's center. The Vertical Diameters of Venus, Jupiter, and Saturn were obtained by merely doubling the numbers in column 9, right hand page of the *Zenith Distances*, &c.

The tabular intervals occupied by the transits of diameter, are taken, for the Sun and Jupiter, from the *Meridian Ephemeris;* for the Moon, from the Nautical Almanac. Those for Saturn's Ring are derived from the intervals for the planet's equatoreal diameter given in the Meridian Ephemeris, by multiplying the latter by 2,314, this being the tabular ratio* of the axis major of the ring to the equatoreal diameter. The tabular vertical diameters of the Sun, Venus, Jupiter, and Saturn, are taken immediately from the Meridian Ephemeris: the Moon's is interpolated with second differences from the Nautical Almanac. For those days on which Jupiter was not in the Meridian Ephemeris the tabular values were calculated from the data employed in the Nautical Almanac.

The differences between the observed and the tabular values of the intervals of transit and vertical diameters are exhibited for the purpose of obtaining corrections to the latter if required. In the instance of the Moon the tabular errors of the intervals of transit are converted into errors of diameter in arc by multiplying the former by 15 × the inverse of the factor, the expression for which is given in p. xvi.

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* See Nautical Almanac for 1838, pp. 361 and 476.

4°. *Sidereal Intervals occupied by transits of the Moon's Diameter, observed with the five-feet Equatoreal and Clock Graham,* in pages (22) and (23).

The calculation of these observations requires little explanation in addition to that given in p. (23.) The mean of the observed intervals of transit of the diameter is supposed to correspond to the mean of the times of observation. The Moon's R.A. (x) at that time, was interpolated with second differences from the Nautical Almanac, and then the tabular sidereal interval of transit of the Diameter (y) was inferred from the equation $y = a + bx + cx^2$; the constants a, b, c, being known from the values of y and x given in the Nautical Almanac for the three consecutive transits, upper or lower, of the Moon across the meridian of Greenwich, which were nearest the mean time of observation*. The calculations for finding the corrections for defect of illumination, and for converting the tabular errors of the intervals of transit of the diameter, into errors of the tabular diameter in arc, were performed in the manner just stated with reference to the observations on the meridian.

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* In this calculation no account is taken of the alteration of the interval of transit depending on parallax. The following mathematical reasoning will shew that no sensible error has been incurred by this omission. Let θ be the hour angle, δ the N.P.D., z the distance from the geocentric zenith, of the Moon's center, and s her semidiameter, as seen from the place of observation: θ', δ', z', and s', the same quantities as seen from the Earth's center. Then $\sin(\theta - \theta') = k \sin\theta$, k being a small constant of the same order as the horizontal parallax. Hence $\frac{\delta\theta'}{\delta\theta} = 1 - k\cos\theta$ nearly. Now the interval of the transit of diameters as seen from the place of observation : the interval as seen from the Earth's center :: $\frac{s}{\delta\theta \times \sin\delta} : \frac{s'}{\delta\theta' \sin\delta'}$. And $\frac{s}{s'} = \frac{\sin z}{\sin z'}$. Hence the ratio of the former to the latter interval $= (1 - k\cos\theta) \cdot \frac{\sin\delta'}{\sin\delta} \cdot \frac{\sin z}{\sin z'} =$ (by spherical triangles) $(1 - k\cos\theta) \cdot \frac{\sin\theta}{\sin\theta'} = \frac{(1 - k\cos\theta)\sin\theta}{\sin\{\theta - (\theta - \theta')\}} = \frac{1 - k\cos\theta}{1 - \cot\theta \sin(\theta - \theta')}$ (nearly) $= \frac{1 - k\cos\theta}{1 - k\cos\theta} = 1$. Hence, by neglecting powers of k above the first, this ratio is independent of the hour angle, and consequently the interval of transit of the diameter is nearly the same at all azimuths as when seen from the Earth's center.

Right Ascensions and North Polar Distances of the Centers of the Sun, Moon, and Planets, observed in the year 1838.

These, with the *Greenwich Mean Solar Times of transit of Center,* are given in pages (26)—(39), and are compared with the places interpolated from the Nautical Almanac, or the Meridian Ephemeris.

When both limbs of the Sun or a planet have been observed with the Transit, and when the apparent disc of a planet is very small, the *Right Ascension of Center from observation* is taken without alteration from column 9 of the pages containing the *Calculation of apparent Right Ascensions.* When one limb only is observed, the right ascension of center is inferred from the observed R.A. of the limb, by applying the sidereal time occupied by the transit of the semidiameter, as given in the Meridian Ephemeris. It is to be understood that both limbs of the Sun have been observed unless one is specified in the columns headed *Limb observed.*

It appears by the comparison in pages (16) and (17) of the observed intervals occupied by the passage of the Sun's diameter across the meridian with the tabular intervals, that the mean excess of the former above the latter, deduced from 107 observations by Mr Baldrey, is $+ 0^{s},296$, and from 13 observations by myself, $- 0^{s},082$. The former result may be taken as applying to a declination of 15°, and the latter to a declination of 9°. Hence the excess of the observed above the tabular diameter by B's observations is equal in arc to $+ 4'',29$, and by C's observations to $- 1'',10$. The mean excess by the circle observations, in number 130, is $+ 0'',08$. If the circle observations be assumed to give the correct diameter, it will follow that the diameter by B's transit observations is too great by $4'',21$, and by C's too small by $1'',18$. On the whole it may be concluded that the diameter given by a collection of transit observations by the two observers is too great by at least $3''$. As there is reason to think that this error occurs in the observations of the second limb, the R.A. of the Sun by observation is consequently too great by half this quantity.

With respect to the Moon, it was thought best to give in the present Volume the R.A. of the center by observation, at the time of transit of the *center*, in the same manner as for all the other bodies. This is deduced from the observed R.A. of the limb by applying the sidereal time occupied by the transit of the semidiameter, taken from the section of Moon-culminating stars in the Nautical Almanac, and increased by

$$\frac{1}{15} \times 2^{s},31 \times \textit{sec. of Moon's declination},$$

it being found that the Moon's tabular semidiameter is 2″,31 in defect.

The above correction is applied to the Moon's tabular semidiameter on the following considerations.

From the results given in page (17), the mean error of the Moon's diameter by 6 transit observations is − 6″,99, and by 8 circle observations, − 4″,91: and from the results in p. (23), the mean error of the diameter by 18 transit observations, giving to the result of each day a weight proportional to the number of observations taken, is − 2″,57. If now, for the reasons just stated, the diameters by B's observations with the transit be diminished by 4″,21, and that by C's observation on Sept. 3, be increased by 1″,18, and, as G's and C's observations agree very closely, if the mean result of the equatoreal observations be also increased by 1″,18, the final results will stand as follows:

			″
Correction to Moon's semidiameter by	6 observations with the	Transit	+ 1,84
....	8	Circle	+ 2,46
....	18	Equatoreal	+ 1,88

All the observations being considered to have the same weight, the mean result is + 2″,02. By 16 observations in 1837 (Introduction to Volume for 1837, p. lxiv.) the correction was found to be 2″,89. Attributing to these two results weights proportional to the number of observations by which they were obtained, the concluded correction will be + 2″,31, which is that adopted.

The *North Polar Distance of Center from observation* is deduced from column 10 of the pages containing the *Calculation of Geocentric N.P.D.*, by correcting the N.P.D. of that column, or, in the instances of the Sun and Moon, the mean of the different values, for error of colatitude and discordance of zenith points. For the Moon there are also applied, the correction 2″,31 for error of semidiameter; small corrections for curvature of path omitted in the calculation of the concluded circle readings; and an additional correction, in every other instance insensible, for the position of the circle. The N.P.D. by the observation is that for the time of passing the middle wire; and as this time does not in general coincide with the meridian passage, a correction is required for the change of the Moon's N.P.D. in the interval. By transits of known stars observed with the circle and Molyneux, and referred by comparison of clocks to Hardy, the intervals between the meridian passage and the passage across the middle wire, were found for various polar distances, whence, by the intervention of graphical construction, the intervals corresponding to the Moon's N.P.D. at the times of observation were inferred. The variations of N.P.D. in these intervals were then calculated from the variations for 10^m in the hourly ephemeris of the Nautical Almanac, and applied as corrections to the observed N.P.D.

The table below exhibits the names and approximate N.P.D. of the stars observed for the position of the Circle from the beginning of the year to June 21, (when it was removed from the wall,) together with the calculated excesses of the observed times of transit across the middle wire above the times of meridian transit, by means of which the Circle's position may be judged of. It was not thought worth while to give the observations in detail: the calculations were carefully verified.

Day of Observation. 1838.	Star.	Approximate N.P.D.	Excess.	Day of Observation. 1838.	Star.	Approximate N.P.D.	Excess.
		° ′	s.			° ′	s.
Feb. 28	ϵ Hydræ........	82 . 59	+ 1,70	May 3	α Serpentis	83 . 3	+ 1,61
...	α Hydræ	97 . 57	+ 1,03	29	α Coronæ Bor.	62 . 44	+ 3,26
				...	α Serpentis	83 . 3	+ 2,13
April 24	ϵ Bootis.........	62 . 14	+ 2,69	30	α Ophiuchi.....	77 . 19	+ 2,40
...	α^2 Libræ........	105 . 22	+ 0,60				
...	β Libræ	98 . 47	+ 0,90				
...	α Coronæ Bor.	62 . 44	+ 2,74	June 4	α Serpentis	83 . 3	+ 1,70
...	α Serpentis....	83 . 3	+ 1,59	...	β^1 Scorpii.......	109 . 21	+ 0,12
				...	δ Ophiuchi......	93 . 16	+ 0,96
May 3	α Hydræ	97 . 57	+ 0,96	...	α Herculis......	75 . 25	+ 2,00
...	Arcturus........	69 . 58	+ 2,21	...	α Ophiuchi	77 . 19	+ 1,69
...	α Coronæ Bor.	62 . 44	+ 2,73	19	δ Ophiuchi......	93 . 16	+ 0,78

The following table relates in a similar manner to the position of the Circle from June 21 to the end of the year.

Day of Observation. 1838.	Star.	Approximate N.P.D.	Excess.	Day of Observation. 1838.	Star.	Approximate N.P.D.	Excess.
		° ′	s.			° ′	s.
Nov. 30	Arcturus	69 . 58	+ 2,27	Dec. 7	α Coronæ Bor.	62 . 44	+ 2,80
...	ε Bootis	62 . 14	+ 2,73	9	η Bootis	70 . 47	+ 2,34
				...	ε Bootis	62 . 14	+ 2,82
Dec. 2	ε Bootis	62 . 14	+ 2,94	...	α Coronæ Bor.	62 . 44	+ 3,12
...	α Coronæ Bor.	62 . 44	+ 2,95	...	α Serpentis	83 . 3	+ 1,89
...	α Serpentis	83 . 3	+ 1,88	11	θ¹ Ceti	99 . 1	+ 1,30
3	ε Bootis	62 . 14	+ 2,49	...	α Arietis	67 . 18	+ 2,96
...	α Coronæ Bor.	62 . 44	+ 2,99	14	α Coronæ Bor.	62 . 44	+ 3,30
...	α Serpentis	83 . 3	+ 1,94	...	α Serpentis	83 . 3	+ 2,18
4	γ Ceti	87 . 27	+ 1,59	15	α Pegasi	75 . 40	+ 2,62
5	α Coronæ Bor.	62 . 44	+ 2,80	...	Rigel	98 . 24	+ 1,07
...	α Serpentis	83 . 3	+ 1,71	...	δ Orionis	90 . 25	+ 1,36
6	α Aquarii	91 . 6	+ 1,06	...	α Leporis	107 . 57	+ 0,48
...	α Pegasi	75 . 40	+ 1,90	...	ε Orionis	91 . 19	+ 1,24
7	ε Bootis	62 . 14	+ 2,67				

The following table of mean results, formed from those above by graphical construction, was employed in deducing by interpolation the intervals for the Moon.

North Polar Distance.	Interval of transit across middle wire from meridian transit.	
	Before moving the circle.	After moving the circle.
°	s.	s.
60	+ 2,92	+ 2,95
70	+ 2,39	+ 2,45
80	+ 1,86	+ 1,95
90	+ 1,33	+ 1,45
100	+ 0,80	+ 0,95
110	+ 0,27	+ 0,45
120	− 0,26	− 0,05

The *Greenwich Mean Solar Time* corresponding to any sidereal time of transit, is found by adding to the equivalent, in solar time, of the sidereal time, the next preceding mean time of the transit of the first point of Aries, diminished by 23ˢ,48, as the Cambridge Observatory is 23ˢ,54 east of the Greenwich Observatory.

As in every instance in this Volume the Right Ascension of Center from observation is given for the time of transit of center, the Greenwich Mean Solar Time is always the time of transit of *center*, and is deduced by the rule above from the observed Right Ascension of Center.

When a Circle observation is not accompanied by a Transit observation, the Greenwich Mean Solar Time in the instance of the Sun and Planets is calculated from the R.A. of the Meridian Ephemeris, corrected for the difference of longitude of the Greenwich and Cambridge Observatories by subtracting 0,00654 × the horary variation of R.A. given in that work. The tabular R.A. of Saturn on May 12 was also corrected by $+ 0^s{,}60$ and on July 18 by $+ 0^s{,}90$, for error of the tables: and the tabular R.A. of Uranus for the same reason was corrected on Aug. 29 and Sept. 3 by $- 4^s{,}65$, and on Dec. 15, 18, and 28, by $- 4^s{,}37$, these corrections being approximately the tabular errors at those times as inferred from preceding and following observations.

When the object was neither observed with the Transit nor was in the Meridian Ephemeris, the Greenwich Mean Solar Time of transit of center across the meridian of the Cambridge Observatory was calculated by the formula used in the Calculations of the Meridian Ephemeris, with, however, the following exceptions. For Ceres on Jan. 22 the Greenwich Mean Solar Time of Cambridge transit was interpolated from those of Jan. 18, 20, and 29; and for Mars on July 25, from those of July 23, 26, and 27. For Jupiter on Oct. 31, the Greenwich Mean Solar Time was calculated from an unsatisfactory transit observation of the planet not recorded in the 'Transits as observed.'

For the Moon, first the Greenwich Mean Solar Time of transit of limb is calculated, either from the observed R.A. of the limb, or, if that has not been observed, from the R.A. of the limb given under the head of Moon-culminating stars in the Nautical Almanac, a correction being applied for difference of Meridians. Then the Greenwich Mean Solar Time of transit of center is inferred by applying without correction the *sidereal* time occupied by the transit of the semidiameter as given in the Nautical Almanac, the correction for conversion into mean solar time being nearly equal and of opposite sign to that for error of semidiameter.

The *Seconds of tabular R.A. and N.P.D.*, from which the *Errors of Tables* are deduced, have been obtained for the Sun and Planets, by subtracting from the R.A. and N.P.D. of the Meridian Ephemeris 0,00654 × the horary variations in R.A. and N.P.D., whenever the observations were made within the limits of the calculated places of that work. Where this was not the case, the tabular places have been interpolated with second differences for the time of meridian passage from the daily Ephemeris of the Nautical Almanac. As the accurate Ephemeris of the small planets in the Nautical Almanac extends only to a limited time before and after opposition, the tabular places could not be exhibited collaterally with the observed places beyond those limits.

The seconds of tabular R.A. of the Moon's center have been derived from the R.A. of the limb in the section of Moon-culminating stars in the Nautical Almanac, by applying the sidereal time occupied by the transit of the semidiameter as there given, and subtracting 0,00654 × the variation of R.A. for 1^h of longitude. The seconds of tabular N.P.D. of center have always been obtained by interpolating for the Greenwich Mean Solar Time of transit of center with second differences from the hourly Ephemeris of the Nautical Almanac.

Following the column of errors of the tables of the Moon in N.P.D. are two others, the first of which exhibits the effect on the errors in N.P.D. of increasing the parallax one-thousandth part; and the other, the effect of supposing the Earth spherical with the same equatoreal radius. The last mentioned column is formed by taking the parallax computed, as before stated, supposing the ratio of the axes to be that of 297 to 298, from the parallax separately computed, supposing the Earth to be spherical, and gives the means of readily altering that ratio if required.

The *Determination of the Position of the Ecliptic and of the mean error of the assumed Right Ascensions of the Fundamental Stars from the Circle*

Observations of 1838, in pages (40) and (41), has been inserted to give the means of inferring absolute errors of the Solar, Lunar, and Planetary Tables from the observations of this Volume. The calculations have been made on the following principles.

The true longitude λ, and true North Polar Distance Δ, of the Sun's center, and the true obliquity I, at any instant, are related to each other by the equation,

$$\cos\Delta = \sin\lambda \sin I,$$

and the tabular longitude $\lambda + \delta\lambda$, the tabular North Polar Distance $\Delta + \delta\Delta$, and the assumed obliquity $I + \delta I$, in the Nautical Almanac, for the same instant, by the equation,

$$\cos(\Delta + \delta\Delta) = \sin(\lambda + \delta\lambda)\sin(I + \delta I).$$

Hence, neglecting powers of the errors $\delta\lambda$, $\delta\Delta$, δI, above the first,

$$\delta\Delta + \operatorname{cosec}\Delta \cos\lambda \sin I\,\delta\lambda + \operatorname{cosec}\Delta \sin\lambda \cos I\,\delta I = 0 \dots\dots\dots (A).$$

Now it is assumed that the variations of λ and I in the course of a year are in accordance with the theoretical calculations, and consequently that their values, as given in the Nautical Almanac, are affected, if by any, by constant errors, which it is proposed to find.

The actual errors of the Solar Tables in N.P.D. cannot be immediately derived from the errors in the columns of pages (26)—(28), because, though mere errors of observation may be supposed eliminated in the mean result from a large number of observations, there may still remain uncorrected instrumental errors and errors of reduction. Representing therefore by α any error in N.P.D. taken from those columns, and by p the excess of the observed above the true N.P.D., we shall have,

$$\begin{aligned}\delta\Delta &= (\text{Tabular N.P.D.} - \text{observed N.P.D.})\\ &\quad + (\text{observed N.P.D.} - \text{true N.P.D.}) = \alpha + p;\end{aligned}$$

and as we are ignorant of the causes to which p may be owing, it is assumed to be constant within the limits of the tropics. The formula in page (40) is obtained by putting m for $\sin I\delta\lambda$, n for $\cos I\delta I$, and $a+p$ for $\delta\Delta$ in equation (A).

Instead of forming a separate equation from this formula for every different value of a, the whole number of observations is divided into twelve nearly equal groups, the mean of the values of a in each group is considered to correspond to the day nearest the numerical mean of the days of observation in the group, and λ and Δ are taken for the mean noon of the mean day from the Nautical Almanac. In this manner twelve different equations were formed. The rest of the calculation for finding m, n, and p, requires no explanation additional to that given in pages (40) and (41)*.

Let δR now represent the mean excess for the year of the Sun's tabular R.A. above the true, (which is not sensibly different from the mean excess of the tabular longitude above the true); let β be the mean error of the tables in R.A. as derived from the columns of pages (26)—(28); and suppose the mean excess of the assumed R.A. of the fundamental stars above the true to be q. Then,

$$\delta R = (\text{Tabular R.A.} - \text{observed R.A.}) + (\text{observed R.A.} - \text{true R.A.}) = \beta + q;$$

and as δR is known from the equation $m = \sin I\delta\lambda$, q is also determined.

By this determination the mean excess of the assumed R.A. of the fundamental stars above the true is $0^s,110$: by that of 1837 it was found to be $0^s,144$, the assumed R.A. of the latter year exceeding those of 1838 by the mean quantity $0^s,083$. (See page xxxiii.) Reduced to the same place of the equinox the results will therefore be $0^s,110$ and $0^s,061$. It is, however, to be remarked that these results are obtained on the supposition that the transit observations of the Sun's center are affected by no constant error, which from what is stated in page lxv appears not to be the case†.

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* The resulting value of p differs from that obtained from the observations of 1837 by $0'',225$. The two values would have more nearly coincided if the correction for discordance of zenith points had been zero at the zenith in 1838, as it was in the preceding year.

† See the Supplement to this Introduction.

The *Comparisons of Clocks and Chronometers* in pages (44) and (45) are used in the reduction of the extra-meridional observations. When required for occultations of fixed stars by the Moon, the comparisons of Graham with Hardy were generally made for greater accuracy with a solar chronometer by coincidence of beats.

The *Rates and Errors of Chronometer U and Clock Graham* employed in the observations of Encke's Comet are calculated in pages (46) and (47). It will be seen that the rate of *U* was very irregular: but as this Chronometer was only used for noting times of observation, and not for ascertaining differences of R.A., the irregularity of rate is of no material consequence.

OBSERVATIONS WITH THE NORTHUMBERLAND EQUATOREAL AND THE FIVE-FEET EQUATOREAL.

Before any observations were made with the Northumberland Equatoreal, the position of the Polar Axis was ascertained. At the time this was done the telescope was not furnished with a micrometer eye-piece; and as it has no declination circle, the following process was adopted. An eye-piece containing two wires crossing at right angles was adjusted by the position-circle so that an equatoreal star passed along one of the wires. By means of this the error of collimation and the error of position of the declination axis were found. It was then considered, supposing these two errors corrected, and the instrument to have no motion about the Polar Axis, that the true line of collimation moves in a plane passing through, or parallel to, the axis of revolution of the instrument, and the intersection of two such planes is parallel to, or coincident with, this axis. Hence the positions of two planes in which the true line of collimation moves being known, the position of the axis of the instrument relatively to the axis of the heavens can be ascertained. The method of finding the positions of the planes was to observe the transits of two known stars across the vertical wire in each position, motion about the polar axis being prevented, and stars on opposite sides of the pole being selected, differing about 12^h in R.A.

The error of collimation and error of position of the declination axis were found by observations on Aug. 2, but more correctly by the following observations on Aug. 21, 9^{h}.

Time of transit of α Aquilæ by Chronometer *U* (finder below), $18^{h}. 3^{m}. 10^{s},3$: reading of Hour Circle $12^{h}. 26^{m}. 52^{s}$.

Time of transit of α Aquilæ by *U* (finder above) $18^{h}. 6^{m}. 33^{s}$: reading of Hour Circle $0^{h}. 29^{m}. 49^{s}$.

Difference of times by *U*, $3^{m}. 22^{s},7$: difference of times by Hour Circle, $2^{m}. 57^{s},0$: excess of former, $25^{s},7$.

The difference of times is *less* by the Hour Circle than by the Chronometer. Hence (finder below, and object-glass looking southward) the star came earlier to the wire than to the true line of collimation, and the line of collimation was consequently too much to the *East*. Correction for error of collimation of equatoreal stars $= + 12^{s},7$.

Again, time of transit of β Cassiopeiæ by *U* (finder above) $19^{h}. 45^{m}. 24^{s},2$: reading of Hour Circle, $21^{h}. 50^{m}. 22^{s}$.

Time of transit of β Cassiopeiæ by *U* (finder below) $19^{h}. 49^{m}. 59^{s},0$: reading of Hour Circle, $9^{h}. 55^{m}. 38^{s}$.

Difference of times by *U*, $4^{m}. 34^{s},8$: difference of times by Hour Circle, $5^{m}. 16^{s}$. The N.P.D. of the star being $31^{0}. 45'$, the former difference must be increased by $48^{s},3$ for error of collimation, and will thus become greater than the latter by $7^{s},1$. Hence, error of position of declination axis $= \frac{7,1}{2} \times \tan 31^{0}. 45' = 2^{s},2 = 0',55$ in arc. By this error stars come too *late* to the wire when the finder is below, and the object-glass looks southward.

After several unsuccessful observations for determining the position of the Polar axis, the following made on Aug. 11 proved satisfactory.

The instrument being clamped, time of transit of α Ursæ Majoris by the solar chronometer *W* (finder above) was $9^{h}. 46^{m}. 34^{s},5$; and time of transit of α Andromedæ by *W* (finder below) was $10^{h}. 51^{m}. 56^{s},2$. The difference converted into sidereal time $= 1^{h}. 5^{m}. 32^{s},4$.

By comparison of *W* with Hardy, $10^{h}. 31^{m}. 47^{s},5\ (W) = 19^{h}. 49^{m}. 49^{s},0\ (H)$, and *H* was 54^{s} slow. Hence, the R.A. of α Ursæ Majoris being $10^{h}. 53^{m}. 41^{s},3$ its hour angle west of the meridian was $8^{h}. 11^{m}. 41^{s},3$. From the hour angles and the known N.P.D. of the stars, the above difference of the times of transit was corrected for refraction and error of collimation (the correction for position of the declination axis was omitted), and the resulting difference was $1^{h}. 6^{m}. 26^{s},3$. But the difference of R.A. of the stars $= 13^{h}. 6^{m}. 22^{s},8$. Hence the instrumental error is $3^{s},5$.

The instrument being clamped in another position, the time of transit of Capella by *W* (finder below) was $11^{h}. 8^{m}. 43^{s}$, and of α Ophiuchi (finder above) $11^{h}. 33^{m}. 22^{s}$. The hour angle of Capella, east, was $8^{h}. 37^{m}. 1^{s}$. The difference of the times of transit, converted into sidereal time, and corrected for refraction and error of collimation, was found to be $0^{h}. 23^{m}. 59^{s}$. And the difference of R.A. of the two stars $= 12^{h}. 22^{m}. 42^{s}$. Hence the instrumental error $= 1^{m}. 17^{s}$.

These two errors, with the known hour angles of the planes of motion of the line of collimation, and the known N.P.D. of the stars, serve to determine the position of the axis of the instrument*. It was found by calculations of no great complexity that the axis deviated towards the west by $13',83$; and was not enough elevated by $8',52$. These errors were soon after in a great degree corrected by shifting both the upper and lower pivots of the polar axis. By observations with the micrometer eye-piece made on Feb. 15, (1839), the axis was found to be too elevated by $1'. 51''$; and too much inclined to the west by $3'. 28''$. This was the error of position during the observations of Encke's Comet. It is too small to have any effect on those observations.

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* If x and y be the co-ordinates of the pole of the instrument referred to the meridian, and a great circle perpendicular to the meridian through the pole of the heavens, θ the angle which the plane of motion of the line of collimation makes with the meridian, δ, δ' the N.P.D. of the stars, and ϵ the instrumental error, then, $x \sin\theta + y \cos\theta = \epsilon \sin\delta \sin\delta' \operatorname{cosec}(\delta + \delta')$. This with another equation of the same kind determines x and y.

For determining the value of one division of the Sector graduation, and the value of one revolution of the micrometer of the Sector microscope, I observed as follows.

Feb. 15. 4^h (1839), the parallel wires of the double-micrometer eye-piece were equatoreally adjusted, and the Sun's limb was touched by one of them, the sector microscope having been previously read off. The same wire was then quickly brought to the other limb by turning the milled head attached to the sector, and the sector microscope was again read off. As the Sun was very low, these observations are liable to some uncertainty.

Time of Observation by Chronometer *U*.	Sun's Limb.	Sector Readings.	Difference of Readings.
h. m. s.		*d. r.*	*d. r.*
1 . 45 . 0	North South	11 . 17,269 21 . 6,218	9 . 9,274
1 . 56 . 0	North South	12 . 0,000 21 . 9,213	9 . 9,213

Mean of times by $U = 1^h . 50^m . 30^s$.
Mean of differences of readings $= 9^d . 9^r,244$.

Immediately after these observations 1^d of the sector was found to be equal to $20^r,325$ of the microscope-micrometer. This value is used in obtaining the first of the above differences. The mean of the differences of readings expressed in sector divisions is $9^d,4548$.

By comparisons on Feb. 15, $3^h . 54^m . 10^s$ (*U*) = $3^h . 52^m . 41^s$ (*H*), and $9^h . 30^m . 10^s,5$ (*U*) = $9^h . 28^m . 33^s$ (*H*). Hence at $1^h . 50^m . 30^s$, *U* was fast on *H*, $1^m . 28^s$. At the same time *H* was slow, 26^s. Therefore the sidereal time corresponding to the mean of the times by *U* was $1^h . 49^m . 28^s$. The Sun's R. A. at that time was $21^h . 54^m . 22^s$, and consequently the hour angle West, $3^h . 55^m$. The Sun's N.P.D. was $102^0 . 45'$. With these data the difference of refraction of the two limbs in N.P.D. calculated by the formula,

log diff. of refr. = 4,68558 + log refr. at 45^0 zen. dist. + 2 log sec (N.P.D. + *PQ*) + log diff. of N.P.D.,

was found to be $22'',91$, the refraction at zenith distance 45^0 being on that day $59'',08$, and the Sun's diameter, $1944'',54$. Hence $9^d,4548 = 1921'',63$. Consequently, $1^d = 203'',25$, and $1^r = 10'',000$.

1839. Feb. 16, 3^h, the following observations were made in the same manner as those recorded above.

Time of Observation by Chronometer *U*.	Sun's Limb.	Sector Reading.	Difference of Readings.
h. m. s.		d. r.	d. r.
0 . 48 . 30	North South	8 . 0,000 17 . 12,140	9 . 12,140
0 . 53 . 0	South North	17 . 0,000 7 . 11,182	9 . 9,024
0 . 56 . 55	North South	8 . 0,000 17 . 10,354	9 . 10,354
1 . 1 . 10	South North	17 . 0,000 9 . 8,789	9 . 8,789

Mean of times by *U* .... $0^h.\ 54^m.\ 54^s$.
Mean of differences of readings .... $9^d.\ 10^r,077$.

For the value of 1^d as expressed by the revolutions of the microscope-micrometer, I observed as follows just after the above observations.

Microscope reading for preceding division......	$0^r,670$..............	$0^r,681$
.... for following division......	20,874...............	20,889
Difference	20,204...............	20,208

The mean of the two differences, viz. $20^r,206$, is taken for the value of 1^d in calculating the differences of the sector readings of the foregoing table. The mean of the differences of the sector readings expressed in sector divisions is $9^d,4987$.

By a comparison of *U* with Hardy on Feb. 16, $0^h.\ 6^m.\ 25^s,0\ (H) = 0^h.\ 8^m.\ 20^s,5\ (U)$. Hence *U* was fast on *H* $1^m.\ 56^s$. Also *H* was slow 27^s. Therefore the sidereal time corresponding to the mean of the times of observation by *U* is $0^h.\ 23^m.\ 25^s$. The Sun's R.A. was $21^h.\ 58^m.\ 4^s$, and consequently the hour angle West $2^h.\ 55^m,4$. The Sun's N.P.D. was $102^0.\ 25'$. With these data the difference of refraction of the two limbs, calculated in the manner already stated, was found to be $6'',59$, the refraction at zenith distance 45° being 58″,3, and the Sun's diameter 1944″,16. Hence $9^d,4987 = 1937'',57$. Consequently $1^d = 203'',98$, and $1^r = 10'',095$.

By giving to the determinations of Feb. 15 and Feb. 16 weights proportional to the respective number of observations, the final results are,

$$1^d = 3'.23'',74; \quad 1^r = 10'',063.$$

The observations of *Differences of R.A. and N.P.D. of Encke's Comet and neighbouring Stars with the Northumberland Equatoreal,* in pages (50)—(54), were made in the manner stated in pages xii and xiii of this Introduction, and require little additional explanation.

The times of observation by *U* are the times of bisecting the comet or star by the straight boundary of the field of view, which by the position circle was placed perpendicular or parallel to the equator according as observations of differences of R.A. or N.P.D. were required. The times by *U* are converted into sidereal times by the table in p. (46).

The apparent excess of the R.A. of the comet above the R.A. of the star, [pages (50)—(52)] is the algebraic excess* of the reading of the moveable index of the Hour circle for the comet above the reading for the star, corrected for the rate of the Hour Circle. For as this index is permanently fixed to the frame of the Polar Axis, if the Hour Circle were made by the clock to revolve exactly according to sidereal time, the difference of readings would be exactly the difference of R.A. of the two objects. The rate of the Hour Circle for the series of each day may be calculated from the difference of the first and last index readings of the same star, supposing both observations to have been made at the same boundary of the field of view. The remainder obtained by subtracting the first index reading from the last, is the gain of the Hour Circle (subject to error from refraction) in the known sidereal interval between the two observations, whence the gain in 1^h may be inferred.

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* The order of the graduation of the Hour Circle is from South through East to North.

Comparisons were also made between the Chronometer *U* and the readings of the *fixed* index, for the purpose of obtaining the rate of the Hour Circle. The following table exhibits the comparisons with their results. No allowance is made in the calculations for the rate of *U*.

Day of Comparison.	Time by *U*.	Coincident Index Reading.	Calculated hourly rate.	Day of Comparison.	Time by *U*.	Coincident Index Reading.	Calculated hourly rate.
	h. m. s.	h. m. s.	m. s.		h. m. s.	h. m. s.	m. s.
Nov. 10	23.13.18 23.26.24	5.30. 0 5.43.20	+1. 4	Nov. 14	21.20.19 22.11.38	4. 6.40 4.58.40	+0.48
12	23.55.36 24. 4.23	6.29.20 6.38. 0	−0.48	22	22.47. 7 23. 6. 5	6.14.40 6.34.40	+3.16
13	21.30.32 22. 0.56	3.10. 0 3.40.40	+0.32				

The adopted hourly rates on Oct. 29 and Nov. 9 were obtained from the star observations. The rates given by stars on Nov. 10, Nov. 13, and Nov. 14, are respectively + 61^s, + 38^s, and + 54^s: the adopted rates are the means between these and the rates in the above table given by the comparisons on those days. The adopted rate of Nov. 12 is derived solely from the comparisons, the interval between the extreme star observations of that day being very small; and that of Nov. 22 is obtained in the same manner, the determination by the star observations being complicated by the effect of refraction, which, as the observations were made at a small altitude from the horizon, was very considerable.*

The correction for rate of Hour Circle is a part of the hourly rate which bears the same ratio to the whole as the difference of the sidereal times of observation of the star and comet to one hour. The correction is in every instance applied to the reading of the moveable index for the star observation, and, if this precedes the comet observation, is of the same sign as the rate, if not, of contrary sign.

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* I have since calculated the rate of Nov. 22 from the star observations, making allowance for refraction, and find it to be + 10^s. If we may suppose an error of 1^m in the comparisons of that day, the rate they give will be + 6^s, which is so near the preceding value as to render the supposition of an error very probable With this value of the rate the errors of Tables of Nos. 25 and 26 in page (72) will be − 43^s,17 and − 43^s,70, which agree well with the other errors of the same day.

The apparent excess of the N.P.D. of the comet above the N.P.D. of the star, [pages (53) and (54)] is merely the algebraic excess of the sector reading for the comet above the sector reading for the star, converted into arc by means of the values of one sector division and one microscope-micrometer revolution already given. As the sector readings are greater as the N.P.D. is greater, the sign of the excess is *plus* or *minus*, according as the comet's N.P.D. is greater or less than that of the star. These differences of N.P.D., as well as those of R.A., require to be corrected for refraction and parallax.

It may here be remarked that in the method of observing differences of R.A. and N.P.D. practised with the Northumberland Equatoreal, each comet observation might be compared with the preceding and following star observation, and thus double the number of differences be obtained, in the mean of which errors arising from the motion of the instrument about the polar axis would be in great measure eliminated. This advantage was not contemplated at the time Encke's Comet was observed. The observations were in general taken in couples with as little interval as possible between the comet and star observations of each couple, while the intervals between the couples are often very considerable. For this reason in the reductions, each comet observation is compared only with the single star observation with which it was intended to be associated.

The observations of *Differences of* R.A. *of Encke's Comet and neighbouring Stars with the five-feet Equatoreal,* in pages (55)—(58), were made with the Hour Circle clamped during the observation of each set. The comet was observed in almost every instance either on its entrance at the teeth of the comb, or its departure at the straight boundary, its extreme faintness not admitting of satisfactory observation at the wires. The star was observed as often as possible at the same place as the comet. In the instances in which this was not the case, the comet was observed at the comb and the star either at the middle wire or the 5th wire. The sidereal intervals between the places of observation are stated in the notes to the observations, and were calculated on the assumption that the equatoreal interval from the comb to the middle wire is 50^s; and from the comb to the 5th wire 71^s. The times of observation by Graham were converted into sidereal times by the table in page (47). The apparent excess of the R.A. of the comet above the R.A. of the star, is merely the algebraic excess of the sidereal time of observation of the comet above that of the star; the latter in the instances in which both objects were not observed at the same part of the field, being corrected by the quantities stated in the notes. These differences of R.A. have therefore to be corrected for refraction and parallax.

The observations of *Differences of N.P.D. of Encke's Comet and neighbouring Stars with the five-feet Equatoreal* in pages (59)—(64), were made with the instrument fixed during each set, the Telescope moving only in declination, excepting in a few instances recorded in page (64), where the effect of the motion of the instrument on the Index error is taken account of. The extreme faintness of the comet not allowing of illuminating the field sufficiently for seeing the wires, the comet was in general observed by placing its center opposite the large indent and hole of the comb, which the admission of a very small quantity of light rendered visible. The star, after admitting light, was bisected by the fixed wire, which passes through the center of the hole. On Oct. 4 the comet and star were observed when they were judged to be in the center of the field. On Oct. 17 and Oct. 29, attempts were made to bisect the comet with the micrometer wire by alternately letting in and excluding a small quantity of light: and in one instance (No. 123 of Oct. 26) the comet and star were bisected at the upper circular boundary of the field. These modes of observation were far less satisfactory than the one generally employed.

The times of bisection both of the star and the comet were in every instance noted, excepting in the observations of Oct. 17 and Oct. 26. The noted times in Nos. 116, 117, and 118 of Oct. 17 refer only to the star, and those of Oct. 26 only to the comet. The times by Graham are converted into sidereal times by the Table in page (47). In most instances they are the same as the times of observation of differences of R.A.

The difference of N.P.D. of the star and comet, when not too large, was measured by the micrometer *L* or *U*. The micrometer *L* is that which is the lower when the graduated face of the Declination Circle is west, and the object-glass points southward. The micrometer used is stated in the seventh column, and the micrometer reading in the next column. It is to be understood, when no micrometer is mentioned, that the star or comet was bisected by the fixed wire.

In all other cases the difference of N.P.D. of the star and comet was obtained by reading off the declination circle. The pointer reading is put in the sixth column. The microscope, *A* or *B*, is mentioned in the seventh column. Both, with few exceptions, were read off in each observation. The microscope readings are in the eighth column.

The microscope readings of the observation of 6 Cephei in No. 127, having been inadvertently omitted, the adopted readings are the means between those of the same star in No. 126, and 128, as the time of this observation was nearly the mean between the times of the other two. The comet observation of No. 129, being unaccompanied by that of a star, the microscope readings of θ Cephei were assumed so as to differ from those of No. 130, as much as the latter from those of No. 131, the times of the three comet observations being nearly in arithmetic progression.

The corrections for errors of division in column 9 were taken, as far as they could be, from the Tables in pages lvi—lxi, and in page xlviii of the Introduction to the Volume of Cambridge Observations of 1835, and from that in page lvii of the Introduction to the Volume for 1834. The rest are contained in the following Table, which was formed precisely according to the method described in page lv of the Introduction to the Cambridge Observations of 1835, the same double microscope having been employed in spanning the intervals between the divisions.

Division.	Correction to Division.	Division.	Correction to Division.
203°. 45′	17″,5*	23°. 45′	86″,6*
50	18,2	50	88,0
55	16,5	55	88,0
204. 0	17,5	24. 0	88,9
5	17,0	5	86,9
10	18,0	10	88,0
15	18,7	15	85,2
20	18,6	20	84,5
25	16,9	25	83,6
30	16,7	30	84,8
35	15,9	35	82,8
40	14,7	40	84,6
45	14,5	45	83,7
50	14,3	50	84,4
55	14,1	55	83,7
205. 0	15,7*	25. 0	86,5*
5	13,4	5	86,3
10	13,0	10	87,7
15	14,0	15	88,4
20	13,9	20	90,3
25	13,6	25	88,9
30	14,2	30	90,6
35	12,1	35	88,4
40	13,8	40	87,9
45	13,4	45	87,3
50	15,0	50	89,1
55	14,2	55	90,1
206. 0	15,3	26. 0	90,6
5	15,6	5	88,0
10	14,8	10	86,7
15	13,7†	15	85,8†
207. 30	15,8*	27. 30	86,3*
35	15,9	35	84,7
40	16,1	40	84,2
45	16,9	45	84,8
50	17,4	50	86,6
55	17,2	55	85,8
208. 0	17,8	28. 0	86,9
5	18,0	5	84,1
10	19,2	10	84,8
15	19,5	15	84,1
20	19,4	20	85,4
25	18,9	25	82,7
30	17,7	30	86,8
35	17,2	35	82,6
40	17,2	40	84,3
45	16,8*	45	84,2*
212. 30	16,6*	32. 30	88,4*

Division.	Correction to Division.	Division.	Correction to Division.
212°. 35′	15″,0	32°. 35′	87″,6
40	15,0	40	86,1
45	16,2	45	86,1
50	15,5	50	87,5
55	15,9	55	86,3
213. 0	15,7	33. 0	88,2
5	15,0	5	87,1
10	15,1	10	88,0
15	15,4	15	87,3
20	15,8	20	86,3
25	15,9	25	86,6
30	15,9	30	89,8
35	15,5	35	85,6
40	17,4	40	85,4
45	17,6†	45	87,0†
50	18,5	50	85,8
55	18,9	55	84,8
214. 0	20,0	34. 0	87,1
5	17,3	5	86,6
10	18,5	10	87,0
15	19,6	15	93,0
20	19,7	20	87,5
25	18,9	25	90,9
30	16,9	30	87,5
35	18,3	35	86,6
40	16,3	40	88,3
45	15,6	45	87,9
50	14,4	50	87,9
55	13,3	55	86,4
215. 0	13,0	35. 0	86,5
216. 15	12,5	36. 15	84,0
20	11,5	20	85,5
25	10,4	25	84,9
30	11,7	30	86,9
35	11,7	35	84,2
40	13,8	40	85,3
45	12,3	45	82,8
50	12,3	50	86,0
55	11,3	55	84,5
217. 0	12,2	37. 0	87,6
5	10,1	5	85,2
10	9,7	10	86,6
15	11,1	15	84,8
20	11,4	20	85,6
25	10,6	25	84,8
30	12,2†	30	86,5†
35	11,9	35	85,0
40	13,0	40	84,2
45	12,9	45	81,7

Division.	Correction to Division.	Division.	Correction to Division.
217°. 50′	14″,1	37°. 50′	83″,0
55	13,7	55	80,7
218. 0	12,6	38. 0	83,4
5	10,8	5	82,3
10	9,9	10	83,8
15	10,6	15	83,4
20	10,1	20	83,0
25	9,0	25	83,8
30	8,8	30	85,4
35	8,5	35	83,7
40	10,2	40	85,3
45	11,5	45	84,5
50	10,3	50	90,9
55	8,9	55	89,0
219. 0	10,8	39. 0	84,8
5	7,6	5	82,6
10	9,8	10	82,8
15	10,5	15	83,1
20	11,8	20	83,6
25	10,6	25	81,3
30	11,6	30	83,0
35	9,7	35	82,5
40	10,8	40	83,0
45	10,3	45	81,4
50	10,3	50	82,6
55	10,6	55	82,4
220. 0	9,7	40. 0	84,5
225. 0	8,6†	45. 0	91,2†
5	5,9	5	89,9
10	6,5	10	92,1
15	7,8	15	92,5
20	7,5	20	93,1
25	5,4	25	91,4
30	6,8	30	89,7
35	5,5	35	90,9
40	7,3	40	92,9
45	6,1	45	93,1
50	5,3	50	97,5
55	5,6	55	97,3
226. 0	5,9	46. 0	94,5
5	6,2	5	91,3
10	6,5	10	90,8
15	7,7	15	90,6
227. 30	5,9	47. 30	91,3
35	4,9	35	87,6
40	4,8	40	89,7
45	5,9	45	90,5
50	4,7	50	90,3

Division.	Correction to Division.	Division.	Correction to Division.	Division.	Correction to Division.	Division.	Correction to Division.	Division.	Correction to Division.	Division.	Correction to Division.
227° . 55′	5″,5	47° . 55′	95″,6	233° . 25′	8″,2	53° . 25′	75″,5	261° . 10′	31″,4	81° . 10′	77″,9
228 . 0	5,3	48 . 0	94,1	30	9,4	30	71,2	15	33,2*	15	78,4*
5	4,7	5	90,0	35	8,2	35	65,2				
10	6,2	10	90,1	40	8,6	40	63,5	262 . 30	33,8†	82 . 30	80,9†
15	6,5	15	88,6	45	7,2*	45	95,6*				
20	5,8	20	88,7					263 . 45	34,6*	83 . 45	79,5*
25	5,9	25	87,1	235 . 0	7,6*	55 . 0	96,8*	50	35,3	50	80,3
30	5,3	30	87,9					55	36,4	55	80,8
35	5,0	35	85,7					264 . 0	36,4	84 . 0	81,2
40	4,5	40	84,1	260 . 0	34,5*	80 . 0	79,0*	5	34,1	5	79,0
45	5,8†	45	82,5†	5	33,0	5	77,0	10	35,7	10	79,0
232 . 30	6,6†	52 . 30	74,5†	10	33,5	10	78,8	15	36,5	15	79,9
35	4,9	35	73,0	15	35,3	15	77,7	20	37,6	20	80,4
40	4,5	40	74,3	20	35,3	20	78,6	25	36,5	25	79,6
45	4,7	45	74,0	25	34,7	25	77,1	30	37,1	30	78,4
50	4,3	50	75,8	30	34,2	30	79,2	35	36,5	35	76,6
55	4,9	55	73,5	35	32,7	35	75,5	40	35,4	40	78,4
233 . 0	8,1	53 . 0	73,4	40	34,0	40	76,5	45	34,9	45	79,0
5	7,2	5	72,1	45	33,3	45	78,2	50	34,3	50	79,7
10	7,4	10	73,0	50	32,6	50	77,5	55	33,6	55	78,5
15	9,4	15	72,2	55	33,5	55	77,6	265 . 0	35,6*	85 . 0	79,7*
20	8,5	20	72,0	261 . 0	35,1	81 . 0	78,8				
				5	32,0	5	76,8				

In the above Table the corrections marked * were determined by the examination of the divisions in 1835, though not all contained in the Tables above referred to. Those marked † are derived from the Table of errors of fundamental points in page lv of the Introduction to the Volume for 1834.

The corrections for runs in column 10 are calculated for each microscope separately according to the principles stated in page xlii. The runs for arcs of 5′ were adopted from the following observations made on Nov. 4, 12^{h} (1839), under circumstances which may be supposed to be nearly the same as those of the comet observations of 1838. The runs were taken at different parts of the Circle to avoid errors from inaccurate graduation.

Position of Division.	Seconds of Readings, and Runs, of Microscope *A*.					Position of Division.	Seconds of Readings, and Runs, of Microscope *B*.				
	″	″	″	″	″		″	″	″	″	″
Negative Side	58,5	2,1	1,4	6,6	4,5	Negative Side	2,6	2,7	3,7	52,7	8,3
Positive Side	61,9	5,8	6,3	11,1	11,4	Positive Side	3,3	2,7	4,0	53,6	7,4
	+ 3,4	+ 3,7	+ 4,9	+ 4,5	+ 6,9		+ 0,7	+ 0,0	+ 0,3	+ 0,9	- 0,9
Mean of Runs of *A* = + 4″,7.						Mean of Runs of *B* = + 0″,2.					

The concluded reading of the Declination Circle in column 11, is the mean of the microscope readings corrected for errors of division and for Runs.

The apparent excess of the N.P.D. of the comet above the N.P.D. of the star in column 12, when measured by the declination circle, is the algebraic excess of the concluded reading for the comet above the concluded reading for the star. When measured by the micrometer *L*, it is the algebraic excess, converted into arc, of the micrometer reading for the star above that for the comet; and when measured by *U*, the algebraic excess, converted into arc, of the reading for the comet above that for the star, the reading of coincidence with the fixed wire in the former case being $9^{r},917$, and in the latter, $10^{r},041$. These coincidence readings refer to the middle wire, and were obtained by observations made on Oct. 24, (1839) which shewed that since June of 1837, the coincidences had very slightly altered. They are therefore adopted for the comet observations. It was not thought worth while to take account of a minute deviation of the wire of micrometer *L* from parallelism to the fixed wire. The other is as nearly parallel as possible. The value of one revolution of each micrometer is always 33″,400. The differences of N.P.D. in column 12 require to be further corrected for refraction and parallax.

The *Observations of Encke's Comet on the Meridian*, in pages (65) and (66), require little explanation in addition to that contained in the appended notes. The intervals from the middle wire to the meridian in the observations of R.A. with the Circle, were obtained by first deriving from the second column of intervals in the Table of p. lxviii, the errors of the Circle in collimation, level, and azimuth*, and then calculating the three corrections for each observation in the same manner as for Transit observations. The interval for the single observation of the comet with the Transit on Oct. 29, was calculated from the known errors of position of the Transit at that time. The apparent N.P.D. of the comet in page (66) are uncorrected for either refraction or parallax.

All the comet observations are numbered for future reference in the order in which they occur in the printed pages.

The *assumed mean* ***R.A.*** *and* ***N.P.D.*** ***Jan.*** 1, 1838, *of the Stars observed with Encke's Comet,* in page (67), are most of them the mean results of observations with the meridian instruments taken in 1838 and 1839. Those of the latter year have yet to receive corrections, which, however, are too small to be of any importance as regards the comet observations. The R.A. and N.P.D. of 33 Herculis and C Draconis, and the R.A. of θ Persei and ι Ophiuchi, were derived from the Astronomical Society's Catalogue by using the annual variations there given. The R.A. of α Herculis, and θ Cephei were taken from the Cambridge Observations of 1837.

The calculation of the *Geocentric Right Ascensions and North Polar Distances of Encke's Comet* from the observations above described, is exhibited in pages (70)—(74). The results of the observations of R.A. and N.P.D. are arranged separately, but the contents of the columns may be stated conjointly.

The first column contains the reference number. The Greenwich Mean Solar Time in the second column is always that of the observation of the comet, excepting in Nos. 116, 117, 118 of Oct. 17, where it is the time of observation of the star, which was known in each instance to be little different from that of the comet. The hour angle in the third column is always the approximate hour angle of the comet from the meridian (positive if East, negative if West) at the time of its observation. This, in observations in which the instrument was moved about its polar axis, was obtained by subtracting the sidereal time of observation of the comet from its approximate R.A., known from the R.A. of the star with which it was compared, and the approximate difference of their R.A. In the observations with either the five-feet Equatoreal, or the Northumberland Equatoreal, which were made with no motion of the Telescope except in declination, the hour angle is the approximate excess of the R.A. of the star above the sidereal time of its observation, reduced to the same place of observation in the field of view as that of the comet. The hour angles thus found are used in calculating the corrections in R.A. and N.P.D. for parallax and refraction.

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* Let the line of collimation be x'' to the east, the east end of the axis y'' low, and the west end z'' to the south; and let ax, by, cz, be the three corrections to the meridian, calculated in the usual manner, for a N.P.D. in the Table the interval opposite to which is e. Then $ax + by + cz = -e$. Seven such equations were formed, and the mean results were $x = 0$, $y = -45'',51$, and $z = +7'',84$.

The corrections for parallax are in the fourth column. The following formulæ were used in computing them:

$$\textit{Parallax in } \mathrm{R.A.} = \frac{1}{15} \times \textit{horizontal parallax} \times \sin Z'Q' \times \operatorname{cosec} PS,$$

$$\textit{Parallax in } \mathrm{N.P.D.} = \textit{horizontal parallax} \times \cos Z'Q' \times \sin Q'S,$$

in which P is the pole of the heavens, S the place of the body, Z' the geocentric zenith, and $Z'Q'$ is perpendicular on PS*. The logarithm of the horizontal parallax was found by adding 9,9991 to the logarithm of the horizontal equatoreal parallax, which was calculated from the logarithm of distance from the Earth in Mr Stratford's Ephemeris of Encke's comet, dated June 9, 1838, by interpolating for the time of observation with second differences.

The corrections for refraction in the fifth column were derived from the following formulæ:

$$\textit{Refraction in } \mathrm{R.A.} = \frac{A}{15} \times \tan ZQ \times \operatorname{cosec} PS \times \sec QS,$$

$$\textit{Refraction in } \mathrm{N.P.D.} = A \times \tan QS,$$

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* See Cambridge Observations for 1835, p. lxiii. The tables there spoken of were employed in the calculations of parallax and refraction.

Z being the astronomical zenith, and ZQ being perpendicular to PS. Where the zenith distance was not large, A was taken = 57″. On Nov. 12, 22, and 24, the *vertical* refractions for the apparent zenith distances were calculated exactly as for meridian observations with the Circle, regard being had to the states of the Barometer and Thermometer; and the refractions in R.A. and N.P.D. were thence inferred. Bessel's supplementary tables were used when the zenith distance exceeded 85°. The corrections in column 5, when the observations of the comet and accompanying star were made at the same hour angle from the meridian, are differences of refraction in R.A. or N.P.D. corresponding to the approximately known differences of N.P.D. of the two bodies; but when, by moving the instrument about its polar axis, the hour angles were different, the corrections were calculated for the differences of hour angle as well as of N.P.D., the former being known from the sidereal times of observation of the star and comet, and their approximate difference of R.A. The times of observing the star with the Northumberland Telescope on Oct. 20 and 29, not being noted, the refractions are calculated on the assumption that the interval between each comet and star observation was 3^{m}.

The corrections for parallax and refraction for the observations on the meridian were calculated precisely as in other circle observations.

The concluded excesses of the R.A. or N.P.D. of the comet above that of the star in column 6, are the previously obtained excesses with the corrections for refraction and parallax applied.

The assumed R.A. or N.P.D. of the stars in column 7 were calculated for the respective days of observation from the mean R.A. or N.P.D. in page (67), by employing the formulæ in pages xxxvi and lii.

The concluded R.A. or N.P.D. of the comet in column 8 is the sum of the assumed R.A. or N.P.D. of column 7, and the concluded excess of column 6.

The minutes and seconds of the tabular R.A. or N.P.D. (column 9) were interpolated for the Greenwich Mean Solar Time of observation in column 2 from Mr Stratford's Ephemeris, to third and fourth differences when it appeared necessary.

The errors of Tables in the last column are the excesses of the Tabular above the observed R.A. or N.P.D. They are given for all the observations of every kind that were taken.

It will appear from the above details that the reduction of the comet observations has been performed with a degree of accuracy far beyond what the observations themselves can pretend to. This has been done in order to exhibit the final results as free as possible from all errors except those of observation. The discrepancies in the results are very considerable, and are probably owing in great measure to the faintness and indefinite character of the object, and the consequent difficulty of bisecting it always at the same point, especially as the bisections were not made by a field-bar. The observations with the Northumberland Equatoreal, besides being affected with these sources of error, were made under the disadvantage of little previous experience, and whilst several of the arrangements for facilitating the use of it were incomplete, and the clock-movement was not so regular as it has since proved to be. This will account for much of the discordance in the results, especially in the observations of the first two or three days. None of the observations taken previous to Oct. 26, appear to be worthy of confidence.

The *Occasional Remarks* and *Physical Observations* on the Comet in pages (75) and (76) require no explanation.

The Sidereal Times, and Greenwich Mean Solar Times of observation of the *Occultations of fixed stars by the Moon,* &c. in page (78), are calculated from the comparisons of clocks and chronometers in pages (44) and (45). In the *Calculation of the Occultations,* [pages (79)—(87)] the R.A. and N.P.D. of the Moon's center, and the Horizontal Equatoreal Parallax and Geocentric Semidiameter, were interpolated with second differences from the Nautical Almanac. The apparent R.A., N.P.D., and semidiameter, and the apparent distance of the star from the Moon's center, were calculated in the following manner.

Let λ' = the tabular N.P.D. of the Moon's center at the time of observation.

θ' = difference between tabular Æ of Moon's center and Æ of zenith.

l = angular distance of the Pole from the Geocentric Zenith ($= 37^\circ.58'.20'',37$).

Then, for calculating the angular distance (z') of the Moon's center from the Geocentric Zenith,

$$\tan \phi_1 = \frac{\cos \frac{\lambda' - l}{2}}{\cos \frac{\lambda' + l}{2}} \cot \frac{\theta'}{2}; \qquad \tan \psi_1 = \frac{\sin \frac{\lambda' - l}{2}}{\sin \frac{\lambda' + l}{2}} \cot \frac{\theta'}{2};$$

$$\phi_1 - \psi_1 = S; \qquad \sin z' = \frac{\sin l \sin \theta'}{\sin S}.$$

Or, if the angle θ' is small,

$$\tan \phi_2 = \sin \lambda' \sin l \cos \theta'; \qquad \tan \psi_2 = \cos l \cos \lambda';$$

$$\cos z' = \frac{\sin (\phi_2 + \psi_2)}{\cos \phi_2 \cos \psi_2}.$$

For calculating the apparent distance (z) of the Moon's center from the Geocentric Zenith, and the apparent hour angle (θ),

$$\text{sin of Hor. Equat. Parallax} \times \{\text{N}^{\circ}.\ \log = 9{,}9990916\} = F$$

$$\sin (z - z') = F \sin z; \qquad \text{and } \sin (\theta - \theta') = F . \frac{\sin l \sin \theta}{\sin \lambda'} = G \sin \theta.$$

The values of $z - z'$ and $\theta - \theta'$ were calculated by successive approximations to the third.

The apparent Semidiameter = Geocentric Semidiameter $\times \frac{\sin z}{\sin z'}$.

The apparent Æ of the Moon's center is known from the angle θ and the Æ of the Zenith.

For calculating the apparent N.P.D. (λ) of the Moon's center, the angle S, if not found before, must be obtained by the equation, $\sin S \sin z' = \sin l \sin \theta'$. Then, with sufficient approximation,

$$\tfrac{1}{2} (\theta - \theta') \cos \lambda' = n; \qquad \text{and } \sin (\lambda - \lambda') = F \sin z \sec n \cos (S - n).$$

If Δ = the N.P.D. of the Star, d = the difference between λ and Δ, h = the difference of the Moon's apparent Æ and the Star's Æ, and if $d \sqrt{\sin \lambda \sin \Delta} = h \tan \chi$, then

apparent distance of the centers = $h \sec \chi$ very nearly.

To take account of any error in the assumed longitude of the Cambridge Observatory, a term (t) is added to the Greenwich Mean Solar Time of observation; and, similarly, to take account of tabular errors, terms are added to all the values assumed from the Nautical Almanac. The expressions for the Geocentric Æ and N.P.D. thus acquire terms depending on t, the coefficients of which are respectively the Geocentric variations (in arc) of Æ and N.P.D. in one second of time. The coefficients of the corresponding terms in the expressions for the calculated apparent Æ and N.P.D. are the *apparent* variations in the same time, inferred as follows from the Geocentric variations.

The equation $\sin(\theta-\theta') = G \sin\theta$, differentiated, gives $\delta(\theta-\theta') = (G\cos\theta + G^2\cos^2\theta)\,\delta\theta'$, by neglecting G^3, &c. And if a = the geocentric, and a' = the apparent, variation of the Moon's Æ in arc in one second, $\delta\theta : \delta\theta' :: 15'' - a' : 15'' - a$. Hence, by substituting for G,

$$a' = a - (15 - a)(\theta - \theta')\cos\theta \operatorname{cosec}\theta',$$

which is true to the second degree of approximation.

Again, let β = the geocentric, and β' = the apparent, variation in N.P.D. in one second. Then by differentiating the equation $\cos(z - z') = \cos\lambda'\cos\lambda + \sin\lambda'\sin\lambda\cos(\theta - \theta')$ considering λ' constant, and neglecting terms of the order of F^2, it will be found by a troublesome process of mathematical calculation, that

$$\beta' = \beta \pm (15 - a')(\theta - \theta')\cos\lambda\sin\lambda,$$

according as the hour angle is West or East. This formula is also true to the second degree of approximation, and is easily computed after the previous calculations*.

The coefficient of t in the value of the Moon's apparent semidiameter was calculated from the expression, $\mp (15 - a')(\theta - \theta')\sin^2\lambda \times$ apparent semidiameter. The other coefficients require no explanation.

The change of value which the distance (D) of the star from the center of the Moon undergoes by taking the additional terms into consideration, may be inferred by varying all the quantities in the equation $\cos D = \cos\lambda \cos\Delta + \sin\lambda \sin\Delta \sin h$. It will be found that, very approximately,

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* The calculations were actually performed by more complicated formulæ, before it was discovered that they admitted of the above simple forms.

$$\delta D = \left\{\frac{h^2}{4}\sin(\lambda+\Delta) + \sin(\lambda-\Delta)\right\}\frac{\delta\lambda}{\sin D} + \left\{\frac{h^2}{4}\sin(\lambda+\Delta) - \sin(\lambda-\Delta)\right\}\frac{\delta\Delta}{\sin D}$$

$$+ \sin\lambda \sin\Delta \sin h \frac{\delta h}{\sin D}.$$

The numerical values of the coefficients of $\delta\lambda$, $\delta\Delta$, and δh, are readily obtained from the previous calculations. The apparent distance of the star from the Moon's center with this quantity added, is equated to the Moon's apparent semidiameter, and the final equation is thus obtained.

The *Hourly Meteorological Observations at the Vernal and Autumnal Equinoxes, and the Summer Solstice* [pages (89)—(91)] were made in conformity with the notice circulated by Sir J. Herschel in 1835. Those from 10^h to 15^h were made by myself: the rest by Mr Glaisher. The barometer readings are corrected for the error of the barometer already mentioned.

All the Observations in this Volume were originally recorded in pencil writing in small memorandum books, which are carefully preserved for future reference.

SUPPLEMENT TO THE INTRODUCTION.

1°. *Determination of the Position of the Ecliptic and the mean error of the assumed Right Ascensions of the Fundamental Stars from the Circle Observations of* 1836.

The calculations for this purpose were not given in the Volume for 1836, and are therefore added here. The mode of conducting the calculation is precisely the same as that in pp. (40) and (41), and is explained in p. lxxii of this Introduction.

Mean Day.	Mean of the Tabular Errors in N.P.D.	Number of Observations.	Sun's Longitude at Mean Noon.	Sun's N.P.D. at Mean Noon.
	″		° ′ ″	° ′ ″
April 16	– 0,20	12	26 . 30 . 23	79 . 45 . 53
May 15	+ 1,06*	13	54 . 37 . 23	71 . 3 . 24
June 7	+ 0,82	13	76 . 40 . 56	67 . 12 . 18
July 2	+ 0,61	13	100 . 32 . 14	66 . 57 . 24
Aug. 6	+ 0,99	13	133 . 58 . 3	73 . 20 . 52
Sept. 1	+ 0,76	12	159 . 1 . 12	81 . 48 . 16
Oct. 8	+ 0,53	13	195 . 14 . 3	96 . 0 . 19
Nov. 8	+ 1,49	13	226 . 9 . 32	106 . 41 . 19
Dec. 12	+ 1,46	12	260 . 34 . 48	113 . 7 . 40

* The observation of May 16 is excluded, that the whole number may be a multiple of 3.

Equations formed by means of the above Table:

$$\text{Second Quarter}\begin{cases}\text{April } 16\ldots\ldots - \overset{\prime\prime}{2{,}40} + 10{,}9123m + 5{,}4422n + 12p = 0.\\ \text{May } 15\ldots\ldots + 13{,}78 + 7{,}9574m + 11{,}2066n + 13p = 0.\\ \text{June } 7\ldots\ldots + 10{,}66 + 3{,}2483m + 13{,}7221n + 13p = 0.\end{cases}$$

$$\text{Third Quarter}\begin{cases}\text{July } 2\ldots\ldots + \overset{''}{7,93} - 2,5835m + 13,8890n + 13p = 0.\\ \text{Aug. } 6\ldots\ldots + 12,87 - 9,4203m + 9,7661n + 13p = 0.\\ \text{Sept. } 1\ldots\ldots + 9,12 - 11,3201m + 4,3408n + 12p = 0.\end{cases}$$

$$\text{Fourth Quarter}\begin{cases}\text{Oct. } 8\ldots\ldots + 6,89 - 12,6124m - 3,4348n + 13p = 0.\\ \text{Nov. } 8\ldots\ldots + 19,37 - 9,4005m - 9,7887n + 13p = 0.\\ \text{Dec. } 12\ldots\ldots + 17,52 - 2,1357m - 12,8727n + 12p = 0.\end{cases}$$

New Equations formed by adding and subtracting as indicated below:

Second Quarter + Third + Fourth

$$+ 95'',74 - 25,3545m + 32,2706n + 114p = 0.$$

Second Quarter + Third − 2 × Fourth

$$- 35'',60 + 47,0913m + 110,5592n = 0.$$

Second Quarter − 2 × Third + Fourth

$$+ 5,98 + 44,6172m - 51,7171n = 0.$$

The solution of these equations gives,

$$m = + 0'',160; \qquad n = + 0'',254; \qquad p = - 0'',876.$$

Hence $\delta\lambda = + 0'',160 \times \operatorname{cosec} 23^\circ . 28' = + 0'',402$. It will be found from this value of $\delta\lambda$ that $\delta R = + 0'',406$. Hence the mean error of the Tabular Right Ascension (in time) $= + 0^s,027$.

Also $\delta I = + 0'',254 \times \sec 23^\circ . 28' = + 0'',277$, which is the excess of the Obliquity assumed in the Nautical Almanac above that given by observation.

The value of p shews that within the Tropics the North Polar Distances determined by the Circle Observations and Calculations contained in the Volume for 1836 should be increased by the mean quantity $0'',876$.

The mean error of the Solar Tables in Right Ascension, as derived from 117 Tabular Errors in pages 114—116 of the Volume for 1836 (observations of single limbs being excluded) will be found to be $- 0^s,200$.

Hence the assumed R.A. of the fundamental stars are too great by $+ 0^{s},027 + 0,200$, or $+ 0^{s},227$.

The error of the assumed R.A. of the fundamental stars was found by the observations of 1837 to be $+ 0^{s},144$, and by those of 1838, referred to the same origin, to be $+ 0^{s},193$. (See p. lxxii.) It appears, however, from what is said in the Volume for 1837, p. lxii and in this Volume, p. lxv, that the transit observations of the Sun are affected by a constant error; and as I find that the mean error of the Solar Tables in R.A. from C.'s observations, differs from the mean error derived from nearly contemporaneous observations by B., by about half the difference of the mean sidereal intervals of transit of the diameter given by the same observations, it is highly probable that the constant error in R.A. is owing to error in the mode of observing the Sun's second limb. Assuming, therefore, the observations of the first limb to agree with those of stars, and the tabular diameter of the Sun to be correct, it will follow that the mean errors of the Solar Tables in R.A., and the above mean errors of the assumed R.A. of the fundamental stars, should be corrected by half the mean excesses of the observed above the tabular interval of transit of the Sun's diameter in the respective years. These excesses were $0^{s},258$ in 1836, $0^{s},185$ in 1837, and $0^{s},255$ in 1838; and the mean errors of the Solar Tables in R.A., $- 0^{s},200$, $- 0^{s},211$, and $- 0^{s},196$. Hence the corrected errors will be $- 0^{s},071$, $- 0^{s},118$, and $- 0^{s},069$; and the corrected errors of the assumed R.A. of the fundamental stars, $+ 0^{s},098$, $+ 0^{s},052$, and $+ 0^{s},066$. Giving to the first result, as being derived from observations extending over only three quarters of the year, half the weight of each of the others, the mean excess of the assumed above the true R.A. of the fundamental stars by the observations of the three years is $0^{s},067$. The mean excess above the R.A. of the Nautical Almanac is $0^{s},084$.

2°. *Corrections of the Equations deduced from the Calculation of the Occultations observed in* 1836.

In the calculation of these occultations, the geocentric R.A. and N.P.D. of the corresponding point were derived from the apparent R.A. and N.P.D., (supposed to be the same as the R.A. and N.P.D. of the star) by subtracting the parallax corrections. But these corrections were calculated for the noted time of observation, without taking account of the change of their values by the addition of the term t.

Hence the excesses of the apparent above the geocentric variations of R.A. and N.P.D. in t^s are still to be subtracted; or, retaining the signification of the letters in p. xci the terms to be *added* to the geocentric R.A. and N.P.D. of the corresponding point, are respectively $(\alpha - \alpha') \times t$ and $(\beta - \beta') \times t$.

The subjoined values of $\alpha - \alpha'$ and $\beta - \beta'$ were calculated from the formulæ in p. xci, viz.

$$\alpha - \alpha' = + (15 - \alpha) (\theta - \theta') \cos\theta \operatorname{cosec}\theta',$$

$$\beta - \beta' = \mp (15 - \alpha') (\theta - \theta') \cos\lambda \sin\lambda.$$

in which λ is the apparent N.P.D. of the corresponding point, and θ, θ', its apparent and geocentric hour angles.

Date 1836.	Phenomenon.	Factor of t in Geocentric R.A. of corresponding point.	Factor of t in Geocentric N.P.D. of corresponding point.	Factor of t in Final Equation.
April 25	Disappearance of η Leonis	+0,1537	-0,0030	-0,3240
25	Reappearance of η Leonis........	+0,1450	-0,0150	+0,3351
July 23	Disappearance of δ Scorpii	+0,1571	+0,0191	-0,3603
23	Reappearance of δ Scorpii........	+0,1383	+0,0322	+0,3722
Oct. 27	Disappearance of κ Tauri.........	+0,0508	-0,0565	-0,3381
27	Reappearance of κ Tauri.........	+0,0860	-0,0501	+0,4074
Dec. 24	Disappearance of ω^1 Cancri......	+0,1151	-0,0417	-0,1284
May 15	Disappearance of Solar Spot (*b*)	+0,1263	-0,0253	-0,3375
15	Reappearance of Solar Spot (*c*).	+0,0754	-0,0402	+0,3635

The corrections of the calculations of the beginning and end of the Solar Eclipse of May 15 are already given in the Errata of the Volume for 1837.

TRANSITS AS OBSERVED,

AND

CALCULATION

OF THE

APPARENT RIGHT ASCENSIONS.

1838.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Jan. 2	(*a*) *n* Piscium.............	......	3,0	16,7	30,0	43,4	57,0	23 . 40 . 10,4	− 6,75	C.
	(*a*) *q* Piscium.............	44,0	57,3	......	24,8	38,3	51,6	23 . 54 . 4,8	−2,24	C.
	(*a*) ☽ 1 L..............	56,2	9,8	23,7	37,6	51,3	4,8	0 . 19 . 18,7		C.
	(*a*) A.S.C. 79............	6,6	19,9	33,5	47,1	0,6	13,8	0 . 40 . 27,4		C.
	(*a*) ε Piscium............	45,5	58,9	12,7	26,6	39,8	53,2	0 . 55 . 6,7		C.
	(*b*) α Arietis.............	......	......	......	......	22,0	37,0	1 . 58 . 51,4	−29,10	C.
	α Ceti................	13,3	26,7	40,2	54,1	7,3	......	2 . 54	+ 13,45	C.
	Aldebaran.............	1,0	15,0	29,2	43,2	57,0	11,2	4 . 27 . 25,3		C.
	Rigel................	9,7	23,3	36,8	50,6	4,0	17,5	5 . 7 . 31,1		C.
	β Tauri..............	23,0	38,5	53,7	9,0	24,2	39,7	5 . 16 . 54,7		C.
	α Orionis............	48,8	2,2	16,0	29,6	43,0	56,4	5 . 47 . 10,0		C.
	δ Ursæ Minoris SP...	12.43,0	......	20.13,8	23.57,4	27.46,9	31.35,1	6 . 35 . 20,0	−1 . 15,23	C.
	δ Ursæ Minoris.......	......	16.55,4	20.44,2	24.32,5	28.16,8	32. 1,5	18 . 35 . 46,0	−1 . 53,20	C.
Jan. 3	☉ 1 L................	35,2	49,7	4,6	19,3	33,8	48,4	18 . 55 . 2,8		C.
	☉ 2 L................	57,0	11,6	26,5	41,0	55,5	10,2	18 . 57 . 24,7		C.
	α Andromedæ.........	19,4	34,7	50,0	5,6	20,5	35,7	0 . 0 . 51,0		C.
	A.S.C. 79............	17,2	30,4	43,9	57,5	10,8	24,3	0 . 40 . 37,7		C.
	ε Piscium............	55,8	9,3	23,0	36,6	50,0	3,5	0 . 55 . 17,0		C.
	Polaris..............	36.56,2	45.16,4	......	1.59,0	......	18.27,7	1 . 26 . 45,8	+ 0,63	C.
	☽ 1 L......... (waving)	53,6	7,7	21,3	35,4	49,0	3,2	1 . 10 . 16,8		C.
	η Piscium............	11,8	25,8	39,7	53,9	7,6	21,3	1 . 23 . 35,0		C.
	ο Piscium............	14,4	27,9	41,5	55,1	8,7	22,2	1 . 37 . 35,7		C.
	(*c*) Pallas......... (very faint)	......	31,0	......	0,8	......	......	1 . 50	+ 14,54	C.
	α Arietis............	24,0	38,6	53,1	7,8	22,4	36,7	1 . 58 . 51,3		C.
	α Ceti...............	13,4	26,7	40,2	54,0	7,2	20,8	2 . 54 . 34,0		C.
	Aldebaran...........	1,0	15,0	29,0	43,2	57,1	11,0	4 . 27 . 24,9		C.
	(*d*) Ceres...............	......	......	50,2	5,0	19,5	34,0	4 . 44 . 48,6	− 14,66	C.
	Rigel................	9,6	23,0	36,7	50,5	4,0	17,4	5 . 7 . 31,0		C.
	β Tauri..............	23,0	38,3	53,6	9,1	24,1	39,5	5 . 16 . 54,6		C.
	δ Ursæ Minoris SP...	12.44,3	16.30,7	20.15,4	23.58,5	27.46,0	31.35,0	6 . 35 . 19,4		C.
	α Herculis...........	......	......	4,7	18,9	32,4	46,5	17 . 8 . 0,1	− 13,92	G.
	α Ophiuchi...........	46,6	0,3	14,1	28,0	41,6	55,2	17 . 28 . 9,0		C.
	δ Ursæ Minoris.......	13.11,3	16.56,6	20.45,0	24.33,2	28.15,9	32. 0,3	18 . 35 . 46,0		C.
Jan. 4	☉ 1 L...............	59,5	14,3	28,8	43,4	58,0	12,6	18 . 59 . 27,2		C.
	☉ 2 L...............	21,2	35,9	50,3	5,2	19,7	34,3	19 . 1 . 49,0		C.
	α Aquilæ...........	14,7	28,2	41,8	55,6	9,3	22,7	19 . 43 . 36,0		C.
	α Andromedæ.........	19,3	34,6	50,1	5,4	20,3	35,7	0 . 0 . 50,8		G.
	η Piscium..... (cloudy)	11,8	25,5	39,8	53,6	7,5	21,3	1 . 23 . 35,4		G.
	(*e*) ο Piscium............	......	27,6	41,5	55,2	8,4	22,0	1 . 37 . 35,4	− 6,81	G.
	(*f*) ☽ 1 L..............	8,7	22,8	37,1	51,5	5,6	19,6	2 . 1 . 33,5		G.
	ψ Arietis............	18,0	32,2	46,2	0,4	14,3	28,4	2 . 22 . 42,4		G.
	π Arietis............	38,2	52,0	6,4	20,4	34,3	48,3	2 . 41 . 2,1		G.
	α Ceti......... (Temp. 41°)	13,1	26,3	40,2	53,8	7,2	20,4	2 . 54 . 33,8		G.
	Rigel................	9,4	23,1	36,7	50,5	4,0	17,6	5 . 7 . 31,0		G.
	β Tauri....	22,9	38,2	53,5	9,1	24,3	39,4	5 . 16 . 54,4		G.
	α Orionis............	48,6	2,4	15,9	29,5	42,9	56,3	5 . 47 . 10,0		G.
	δ Ursæ Minoris SP....	12.44,0	16.30,8	20.14,2	23.58,6	27.46,8	31.35,5	6 . 35 . 19,6		G.
	α Ophiuchi...........	45,9	59,9	14,0	27,8	41,3	55,1	17 . 28 . 8,9		B.
	δ Ursæ Minoris.......	13.11,2	16.57,7	20.45,3	24.33,8	28.16,6	32. 0,6	18 . 35 . 46,4		B.
Jan. 5	☉ 1 L...............	22,9	37,4	52,3	7,1	21,4	35,9	19 . 3 . 50,7		B.
	☉ 2 L...............	44,9	59,3	14,0	28,7	43,0	58,0	19 . 6 . 12,9		B.
	α Aquilæ......... (hazy)	13,9	27,7	41,4	55,3	8,9	22,0	19 . 43 . 35,6		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*.
Jan. 3, 3^h. Transit levelled three times and reversed twice, and error of collimation determined.

(*a*) These five observations were taken when the wire-frame was much out of adjustment. It being immediately after shifted through 151″ nearly, the collimation error adopted in reducing them is 151″,0 − 1″,36, or 149″,64. They are of no value except as Moon-culminating observations.

(*b*) Hurried: seconds not taken from clock.
(*c*) Very unsatisfactory: confused by another star.
(*d*) Another star taken at wires I. and II. at 15,3 and 30,0.
(*e*) Wires IV, V, VI, VII. have each been diminished 3^s.
(*f*) Badly defined.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0ʰ.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
23 . 39 . 30,00		+ 15,76	40,80						*n* Piscium.
23 . 53 . 24,56			35,36						*q* Piscium.
0 . 18 . 37,44			48,17						☽ 1 L.
0 . 39 . 46,99			57,69						A.S.C. 79.
0 . 54 . 26,20			36,91						ε Piscium.
1 . 58 . 7,70			8,03	3,31	− 4,72	0,05	− 4,80	1 . 58 . 3,23	α Arietis.
2 . 53 . 53,77			54,37	49,56	− 4,81			2 . 53 . 49,57	α Ceti.
4 . 26 . 43,13			43,57	38,74	− 4,83			4 . 26 . 38,78	Aldebaran.
5 . 6 . 50,42			51,19	46,37	− 4,82			5 . 6 . 46,40	Rigel.
5 . 16 . 8,97			9,21	4,41	− 4,80			5 . 16 . 4,42	β Tauri.
5 . 46 . 29,43			30,00	25,24	− 4,76			5 . 46 . 25,21	α Orionis.
6 . 24 . 0,80	4,15		15,78	12,03	− 3,75			18 . 24 . 10,99	δ Ursæ Min. SP.
18 . 24 . 29,52	26,00		16,04	12,03	− 4,01	0,06	− 4,81	18 . 24 . 11,28	δ Ursæ Minoris.
18 . 54 . 19,12 18 . 56 . 40,93			} 30,99					18 . 55 . 26,23	☉'s center.
0 . 0 . 5,27			5,51	0,76	− 4,75		− 4,75	0 . 0 . 0,76	α Andromedæ.
0 . 39 . 57,40			58,00					0 . 39 . 53,25	A.S.C. 79.
0 . 54 . 36,46			37,03					0 . 54 . 32,28	ε Piscium.
1 . 1 . 53,65			23,06	20,02	− 3,04			1 . 1 . 18,31	Polaris.
1 . 9 . 35,29			35,86					1 . 9 . 31,11	☽ 1 L.
1 . 22 . 53,58			54,03					1 . 22 . 49,28	η Piscium.
1 . 36 . 55,07			55,62					1 . 36 . 50,87	ο Piscium.
1 . 50 . 0,44			1,40					1 . 49 . 56,66	Pallas.
1 . 58 . 7,70			8,03	3,30	− 4,73			1 . 58 . 3,29	α Arietis.
2 . 53 . 53,76			54,36	49,55	− 4,81			2 . 53 . 49,62	α Ceti.
4 . 26 . 43,03			43,47	38,73	− 4,74			4 . 26 . 38,73	Aldebaran.
4 . 44 . 4,80			5,13					4 . 44 . 0,39	Ceres.
5 . 6 . 50,31			51,08	46,37	− 4,71			5 . 6 . 46,34	Rigel.
5 . 16 . 8,89			9,13	4,41	− 4,72			5 . 16 . 4,39	β Tauri.
6 . 24 . 1,33	4,68		16,31	12,04	− 4,27			18 . 24 . 11,58	δ Ursæ Min. SP.
17 . 7 . 18,60			19,05	14,40	− 4,65	0,15	− 4,84	17 . 7 . 14,32	α Herculis.
17 . 27 . 27,83			28,31	23,57	− 4,74			17 . 27 . 23,58	α Ophiuchi.
18 . 24 . 29,76	26,24		16,28	12,04	− 4,24			18 . 24 . 11,56	δ Ursæ Minoris.
18 . 58 . 43,40 19 . 1 . 5,09			} 55,21					18 . 59 . 50,49	☉'s center.
19 . 42 . 55,47			56,01	51,21	− 4,80			19 . 42 . 51,29	α Aquilæ.
0 . 0 . 5,17			5,41	0,75	− 4,66			0 . 0 . 0,57	α Andromedæ.
1 . 22 . 53,56			54,03				− 4,69	1 . 22 . 49,35	η Piscium.
1 . 36 . 54,87			55,42					1 . 36 . 50,74	ο Piscium.
2 . 0 . 51,25			51,73					2 . 0 . 47,05	☽ 1 L.
2 . 22 . 0,27			0,70					2 . 21 . 56,02	ψ Arietis.
2 . 40 . 20,24			20,67					2 . 40 . 16,00	π Arietis.
2 . 53 . 53,54			54,14	49,55	− 4,59			2 . 53 . 49,47	α Ceti.
5 . 6 . 50,32			51,09	46,37	− 4,72			5 . 6 . 46,43	Rigel.
5 . 16 . 8,83			9,07	4,42	− 4,65			5 . 16 . 4,41	β Tauri.
5 . 46 . 29,38			29,95	25,25	− 4,70			5 . 46 . 25,30	α Orionis.
6 . 24 . 1,36	4,71		16,34	12,04	− 4,30			18 . 24 . 11,69	δ Ursæ Min. SP.
17 . 27 . 27,56	27,35		28,04	23,59	− 4,45	0,19	− 4,69	17 . 27 . 23,49	α Ophiuchi.
18 . 24 . 30,23	26,71		16,75	12,04	− 4,71			18 . 24 . 12,21	δ Ursæ Minoris.
19 . 3 . 6,82 19 . 5 . 28,69			} 18,71					19 . 4 . 14,17	☉'s center.
19 . 42 . 54,97			55,51	51,22	− 4,29			19 . 42 . 50,98	α Aquilæ.

Error of Collimation from α Arietis Jan. 2 = − 1″,36.

Level Error = − 2″,17.

The five sets of three consecutive transits of δ Ursæ Minoris Jan. 2—5 give for Meridian Error, 15″,76, 15″65, 15″,73, 15″,89, 15″,75. The mean is used for all.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Jan. 5	Mercury 1 L. (hazy)	55,7	10,0	24,4	39,0	53,0	7,2	20.26.21,6		B.
	Venus 1 L.	10,8	24,9	38,3	52,1	6,0	19,7	22.15.33,3		B.
	α Pegasi	3,8	17,1	31,0	45,0	58,6	12,6	22.57.26,2		B.
	ψ Arietis	17,8	32,0	46,2	0,2	14,1	28,1	2.22.42,2		B.
	π Arietis	37,9	52,0	6,1	20,2	34,0	48,0	2.41. 2,1		B.
	☽ 1 L.	59,9	14,2	29,0	43,7	58,0	12,8	2.54.27,1		B.
	g Arietis	5,8	20,1	35,0	49,9	4,8	19,1	3.15.34,0		B.
	η Tauri	12,5	27,1	42,1	56,9	11,1	25,9	3.38.40,7		B.
	Aldebaran (Temp 34°)	0,8	14,4	29,1	43,2	56,8	10,9	4.27.24,9		B.
	Ceres	58,2	13,0	27,9	42,2	57,0	11,9	4.43.26,1		B.
	(a) Rigel (flaring)	9,4	23,1	36,5	50,1	3,9	17,1	5. 7.31,2		B.
	β Tauri	22,7	38,1	53,3	9,0	24,1	39,1	5.16.54,2		B.
	δ Ursæ Minoris SP.	12.45,5	16.31,4	20.15,2	23.59,2	27.47,5	31.35,3	6.35.21,4		B.
Jan. 8	α Arietis (Temp. 30°)	23,1	37,4	52,0	7,0	21,2	36,1	1.58.50,3		B.
Jan. 11	(b) α Orionis (Temp. 26°)	46,7	......	13,2	......	40,6	54,1	5.47. 7,8	– 5,40	B.
	(b) ☽ 2 L.	22,1	36,2	52,0	7,1	22,1	37,0	8.37.52,0		B.
Jan. 12	α Andromedæ	16,0	31,1	46,8	2,2	17,2	32,5	0. 0.48,1		B.
	α Ophiuchi	43,0	56,7	10,9	24,5	38,1	52,0	17.28. 5,6		B.
	δ Ursæ Minoris	13.11,6	......	20.42,2	......	......	31.59,7	18.35.46,3	– 55,93	B.
Jan. 13	⊙ 2 L. (cloudy)	......	......	......	16,0	30,0	44,4	19.40.58,9	– 21,77	B.
Jan. 14	δ Ursæ Minoris	......	......	20.43,5	24.31,3	28.13,8	31.59,4	18.35.45,7	– 3.46,42	B.
Jan. 15	⊙ 1 L. (great motion)	47,1	1,6	16,1	30,9	44,9	59,2	19.47.13,9		B.
	⊙ 2 L.	7,1	22,0	36,1	51,0	5,3	20,0	19.49.34,0		B.
Jan. 16	⊙ 1 L. (hazy)	4,0	18,3	32,7	47,2	1,9	16,0	19.51.30,6		B.
	⊙ 2 L.	24,1	38,3	53,0	7,7	22,1	36,1	19.53.50,8		B.
	Aldebaran	55,0	9,0	22,8	37,1	51,0	4,8	4.27.19,0		B.
	Rigel	3,1	16,9	30,7	44,0	57,7	11,1	5. 7.24,8		B.
	β Tauri	17,2	31,9	47,0	2,9	18,1	33,1	5.16.48,3		B.
	α Orionis	42,5	56,0	9,7	23,1	36,9	50,2	5.47. 4,1		B.
Jan. 17	⊙ 1 L. (hazy)	19,9	34,1	48,6	3,3	17,7	32,0	19.55.46,2		B.
	⊙ 2 L.	39,9	54,0	9,0	23,1	37,6	52,0	19.58. 6,4		B.
Jan. 18	⊙ 1 L.	35,4	49,7	4,8	19,0	33,1	47,7	20. 0. 2,0		B.
	⊙ 2 L.	55,7	9,9	24,0	38,8	53,0	7,2	20. 2.21,7		B.
	Aldebaran (flaring)	53,1	7,1	21,3	35,1	49,2	3,1	4.27.17,2		B.
	Ceres	38,7	54,0	8,7	23,1	38,1	52,5	4.37. 7,1		B.
	Rigel (Temp. 23°)	1,7	15,3	29,1	42,8	56,2	9,6	5. 7.23,3		B.
	β Tauri	15,2	30,6	45,9	1,5	16,7	31,6	5.16.47,1		B.
	δ Ursæ Minoris SP.	12.37,2	16.20,4	20. 6,7	23.49,8	27.36,3	31.23,8	6.35.12,6		B.
	α Ophiuchi	38,7	52,7	6,8	20,2	33,6	47,7	17.28. 1,4		B.
	(c) δ Ursæ Minoris	13. 6,6	16.52,2	20.40,7	24.28,8	28.11,2	31.56,7	18.35.40,5		B.
	α Aquilæ	6,6	20,0	33,7	47,4	0,9	14,8	19.43.28,1		B.
Jan. 19	(d) ⊙ 1 L.	49,9	4,6	19,1	33,7	47,6	2,1	20. 4.16,3		B.
	⊙ 2 L.	9,8	24,1	38,7	53,1	7,3	21,6	20. 6.36,0		B.
	Venus 1 L.	5,6	19,0	32,9	46,3	0,1	13,4	22.55.27,0		B.
	α Andromedæ	11,0	26,1	41,6	56,9	12,0	27,3	0. 0.42,3		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*. Transit levelled, Jan. 12, 1^h.

(*a*) Intervals not good.

(*b*) Very cloudy and faint. Great change of Temperature since Jan. 4.

(*c*) Extremely faint.

(*d*) Unsteady and hazy.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0^h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
20 . 25 . 38,70		+ 15,76	39,62			0,19	– 4,69	20 . 25 . 35,09	Mercury 1 L.
22 . 14 . 52,15			52,95					22 . 14 . 48,44	Venus 1 L.
22 . 56 . 44,90			45,37	40,73	– 4,64			22 . 56 . 40,86	α Pegasi.
2 . 22 . 0,08			0,51				– 4,50	2 . 21 . 56,03	ψ Arietis.
2 . 40 . 20,04			20,47					2 . 40 . 15,99	π Arietis.
2 . 53 . 43,53			43,92					2 . 53 . 39,44	☽ 1 L.
3 . 14 . 49,82			50,13					3 . 14 . 45,66	g Arietis.
3 . 37 . 56,62			56,93					3 . 37 . 52,46	η Tauri.
4 . 26 . 42,87			43,31	38,73	– 4,58			4 . 26 . 38,85	Aldebaran.
4 . 42 . 42,33			42,66					4 . 42 . 38,20	Ceres.
5 . 6 . 50,18			50,95	46,37	– 4,58			5 . 6 . 46,49	Rigel.
5 . 16 . 8,65			8,89	4,42	– 4,47			5 . 16 . 4,43	β Tauri.
6 . 24 . 2,21	5,56		17,19	12,04	– 5,15			18 . 24 . 12,74	δ Ursæ Min. SP.
1 . 58 . 6,73			7,06	3,24	– 3,82	0,30	– 3,80	1 . 58 . 3,28	α Arietis.
5 . 46 . 27,08		+ 18,73	27,79	25,28	– 2,51	0,90	– 2,73	5 . 46 . 25,28	α Orionis.
8 . 37 . 6,93			7,37					8 . 37 . 4,96	☽ 2 L.
0 . 0 . 1,98			2,32	0,65	– 1,67	0,93	– 1,80	0 . 0 . 0,52	α Andromedæ.
17 . 27 . 24,40	24,20		25,02	23,75	– 1,27			17 . 27 . 23,90	α Ophiuchi.
18 . 24 . 29,02	25,57		13,73	12,04	– 1,69			18 . 24 . 12,64	δ Ursæ Minoris.
19 . 40 . 15,55			16,72					19 . 40 . 15,68	⊙ 2 L.
18 . 24 . 28,32		+ 19,30	12,67	12,18	– 0,49	0,75	– 0,36	18 . 24 . 12,88	δ Ursæ Minoris.
19 . 46 . 30,52			} 41,84					19 . 47 . 42,10	⊙'s center.
19 . 48 . 50,78									
19 . 50 . 47,25			} 58,54			0,75	0,39	19 . 51 . 59,55	⊙'s center.
19 . 53 . 7,45									
4 . 26 . 36,96			37,54	38,68	1,14		1,14	4 . 26 . 38,82	Aldebaran.
5 . 6 . 44,04			45,02	46,33	1,31			5 . 6 . 46,32	Rigel.
5 . 16 . 2,64			3,00	4,41	1,41			5 . 16 . 4,31	β Tauri.
5 . 46 . 23,21			23,95	25,28	1,33			5 . 46 . 25,27	α Orionis.
19 . 55 . 3,11			} 14,32					19 . 56 . 16,08	⊙'s center.
19 . 57 . 23,14									
19 . 59 . 18,82			} 29,91			0,70	2,00	20 . 0 . 32,49	⊙'s center.
20 . 1 . 38,62									
4 . 26 . 35,16			35,74	38,67	2,93		2,70	4 . 26 . 38,57	Aldebaran.
4 . 36 . 23,17			23,61					4 . 36 . 26,44	Ceres.
5 . 6 . 42,57			43,55	46,32	2,77			5 . 6 . 46,40	Rigel.
5 . 16 . 1,23			1,59	4,41	2,82			5 . 16 . 4,44	β Tauri.
6 . 23 . 52,40	55,68		9,92	12,55	2,63			18 . 24 . 12,81	δ Ursæ Min. SP.
17 . 27 . 20,15			20,80	23,90	3,10	0,67	2,70	17 . 27 . 23,99	α Ophiuchi.
18 . 24 . 25,24	21,79		9,59	12,61	3,02			18 . 24 . 12,80	δ Ursæ Minoris.
19 . 42 . 47,36			48,08	51,35	3,27			19 . 42 . 51,33	α Aquilæ.
20 . 3 . 33,33			} 44,30					20 . 4 . 47,56	⊙'s center.
20 . 5 . 52,94									
22 . 54 . 46,33			47,26					22 . 54 . 50,60	Venus 1 L.
23 . 59 . 56,75			57,11	0,56	3,45			0 . 0 . 0,48	α Andromedæ.

Error of Collimation = – 1″,36.

Level Error = – 2″,17. From Jan. 11 = – 2″,09.

Meridian Error by α Ophiuchi and δ Ursæ Minoris Jan. 4 = 16″,32: by the same stars Jan. 12 = 19″,29. That adopted from Jan. 11, is 15″,76 increased by the difference.

Meridian Error from Jan. 14, by δ Ursæ Minoris SP and δ Ursæ Minoris Jan. 18, allowing + $0^s,38$ for loss of clock and – $0^s,05$ for change of Æ.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Jan. 19	α Ophiuchi...........	38,0	52,0	5,3	19,1	33,0	46,7	17 . 28 . 0,7		B.
	(*a*) δ Ursæ Minoris.......	......	......	20.37,6	24.26,3	28. 9,7	31.55,4	18 . 35 . 39,8	– 3 . 46,39	B.
	α Aquilæ............	6,0	19,2	33,0	47,0	0,8	13,7	19 . 43 . 27,3		B.
Jan. 20	(*b*) ⊙ 1 L................	3,9	18,3	32,9	47,3	1,3	15,5	20 . 8 . 30,0		B.
	⊙ 2 L................	23,1	37,7	52,1	7,0	20,9	35,0	20 . 10 . 49,3		B.
	Venus 1 L...........	25,0	38,8	52,0	5,9	19,8	32,3	22 . 57 . 46,0		B.
	(*c*) α Andromedæ.........	12,7	27,1	42,0	56,2	11,1	25,2	0 . 0 . 40,2		B.
	Aldebaran.............	51,8	6,2	20,0	33,8	47,9	1,9	4 . 27 . 16,1		B.
	Ceres.................	7,0	21,5	36,3	51,1	6,0	20,2	4 . 36 . 35,1		B.
	(*d*) Rigel......... (Temp. 18°)	0,2	14,0	27,3	41,1	54,8	8,2	5 . 7 . 21,8		B.
	β Tauri...............	14,2	29,2	44,4	59,9	14,9	30,1	5 . 16 . 45,1		B.
	α Orionis............	39,5	52,9	6,3	20,2	34,2	47,1	5 . 47 . 1,1		B.
	(*e*) δ Ursæ Minoris SP....	12.33,7	16.15,4	19.59,6	23.47,8	27.33,3	31.21,2	6 . 35 . 7,5		B.
	☽ 2 L...............	47,0	1,9	17,1	32,0	47,1	2,1	15 . 40 . 17,3		B.
Jan. 22	Aldebaran...........	49,5	3,6	17,9	32,2	46,4	59,9	4 . 27 . 14,2		B.
	Ceres......... (cloudy)	......	......	......	......	26,2	41,1	4 . 36 . 55,2	– 29,38	B.
	(*d*) Rigel......... (Temp. 33°)	58,2	12,1	25,6	39,5	53,1	6,4	5 . 7 . 20,2		B.
	β Tauri...............	12,2	27,2	42,4	58,2	13,2	28,2	5 . 16 . 43,5		B.
	α Orionis............	37,4	51,2	5,1	18,6	32,1	45,4	5 . 46 . 59,1		B.
	δ Ursæ Minoris SP....	12.33,8	16.18,8	20. 4,3	23.48,2	27.35,4	31.23,7	6 . 35 . 9,6		B.
Jan. 29	⊙ 1 L................	34,0	48,1	2,4	17,0	30,9	44,9	20 . 45 . 59,1		B.
	⊙ 2 L................	51,2	5,9	20,1	34,2	48,2	2,4	20 . 48 . 16,4		B.
	Venus 1 L...........	20,6	34,2	47,5	1,0	14,3	27,9	23 . 14 . 41,1		B.
	α Arietis.............	6,4	20,7	35,2	50,0	4,3	18,8	1 . 58 . 33,1		B.
	Aldebaran...........	43,1	57,1	11,0	25,1	39,0	52,8	4 . 27 . 7,1		B.
	Ceres..... (faint and cloudy)	12,7	27,2	41,8	57,2	11,2	26,2	4 . 35 . 40,9		B.
	Rigel......... (Temp. 36°)	51,6	5,2	19,0	32,5	46,1	59,7	5 . 7 . 13,2		B.
Feb. 3	☽ 1 L.......... (cloudy)	22,2	37,4	52,9	8,2	23,3	38,8	4 . 28 . 54,0		B.
	ι Tauri...............	24,1	38,3	53,4	7,6	22,2	36,3	4 . 53 . 50,8		B.
	Rigel.................	46,6	0,3	14,1	27,6	41,1	54,9	5 . 7 . 8,2		B.
	β Tauri...............	0,3	15,8	31,0	46,1	1,4	16,9	5 . 16 . 32,2		B.
Feb. 4	Aldebaran...........	37,0	51,1	5,3	19,0	33,0	46,9	4 . 27 . 1,2		B.
	ι Tauri..............	23,0	37,4	52,0	6,7	20,8	35,1	4 . 53 . 49,6		B.
	Rigel......... (Temp. 28°)	45,8	59,0	13,0	26,5	40,1	53,7	5 . 7 . 7,2		B.
	β Tauri..............	59,0	14,1	29,8	45,1	0,3	15,4	5 . 16 . 30,9		B.
	☽ 1 L................	33,8	49,2	5,0	20,7	36,2	51,8	5 . 27 . 7,4		B.
	C Tauri..............	5,1	20,1	35,3	51,0	5,9	21,1	5 . 43 . 36,0		B.
	α Orionis............	25,1	38,7	52,0	6,1	19,2	32,8	5 . 46 . 46,2		B.
	κ Aurigæ............	58,9	14,0	29,9	45,1	0,9	16,1	6 . 5 . 31,4		B.
	δ Ursæ Minoris SP....	12.22,3	16. 7,9	19.52,4	23.35,6	27.24,2	31.11,5	6 . 34 . 57,7		B.
	δ Ursæ Minoris.......	12.51,8	16.38,5	20.26,4	24.13,6	27.57,5	31.41,7	18 . 35 . 26,6		B.
Feb. 5	Saturn 1 L...........	3,9	......	32,1	......	0,1	......	15 . 45 . 28,2	+ 0,02	B.
	Saturn 2 L...........	......	20,5	......	49,1	......	16,8	15 . 45	– 0,02	B.
	δ Ophiuchi...........	50,3	3,2	16,8	30,1	43,7	57,1	16 . 6 . 10,5		B.
	Antares...............	22,0	36,8	51,9	7,1	22,1	36,8	16 . 19 . 52,1		B.
	α Aquilæ............	49,3	3,1	16,8	30,2	44,0	57,3	19 . 43 . 11,0		B.
Feb. 6	⊙ 1 L................	57,2	11,1	26,2	39,4	53,2	7,0	21 . 18 . 20,9		B.
	⊙ 2 L................	13,0	26,9	41,0	55,0	8,9	23,0	21 . 20 . 36,9		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*.
Transit levelled Jan. 22, 4^h, Jan. 31, 1^h, and Feb. 7, 1^h.

(*a*) Extremely faint.
(*b*) Very unsteady: 2 L ill-defined.
(*c*) Each wire has been diminished 2^s.
(*d*) Great change of temperature between the 20th and 22d.
(*e*) Intervals not satisfactory.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0^h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	
17 . 27 . 19,26		+ 20,43	19,96	23,92	3,96	0,67	3,37	17 . 27 . 23,82	α Ophiuchi.
18 . 24 . 23,37	19,92		7,01	12,72	5,71			18 . 24 . 10,89	δ Ursæ Minoris.
19 . 42 . 46,72			47,49	51,36	3,87			19 . 42 . 51,41	α Aquilæ.
20 . 7 . 47,03			} 57,98					20 . 9 . 1,91	☉'s center.
20 . 10 . 6,44									
22 . 57 . 5,69			6,68					22 . 57 . 10,69	Venus 1 L.
23 . 59 . 56,36			56,75	0,55	3,80			0 . 0 . 0,79	α Andromedæ.
4 . 26 . 33,96			34,59	38,66	4,07		4,04	4 . 26 . 38,75	Aldebaran.
4 . 35 . 51,03			51,51					4 . 35 . 55,68	Ceres.
5 . 6 . 41,05			42,10	46,31	4,21			5 . 6 . 46,28	Rigel.
5 . 15 . 59,69			0,08	4,40	4,32			5 . 16 . 4,27	β Tauri.
5 . 46 . 20,18			20,97	25,28	4,31			5 . 46 . 25,17	α Orionis.
6 . 23 . 48,36	51,64		6,72	12,77	6,05			18 . 24 . 10,94	δ Ursæ Min. SP.
15 . 39 . 32,07			33,38					15 . 39 . 37,85	☽ 2 L.
4 . 26 . 31,95		+ 17,26	32,44	38,64	6,20	0,97	6,00	4 . 26 . 38,62	Aldebaran.
4 . 36 . 11,45			11,80					4 . 36 . 17,99	Ceres.
5 . 6 . 39,30			40,15	46,30	6,15			5 . 6 . 46,36	Rigel.
5 . 15 . 57,85			58,12	4,39	6,27			5 . 16 . 4,33	β Tauri.
5 . 46 . 18,42	18,22		19,05	25,27	6,22			5 . 46 . 25,28	α Orionis.
6 . 23 . 50,54	54,06		6,80	12,94	6,14			18 . 24 . 13,06	δ Ursæ Min. SP.
20 . 45 . 16,63		+ 18,14	} 26,39			0,96	11,80	20 . 46 . 39,02	☉'s center.
20 . 47 . 34,06									
23 . 14 . 0,94			1,72					23 . 14 . 14,45	Venus 1 L.
1 . 57 . 49,78			50,16	2,97	12,81		12,76	1 . 58 . 3,00	α Arietis.
4 . 26 . 25,03			25,53	38,57	13,04			4 . 26 . 38,47	Aldebaran.
4 . 34 . 56,75			57,12					4 . 35 . 10,06	Ceres.
5 . 6 . 32,47			33,36	46,25	12,89			5 . 6 . 46,32	Rigel.
4 . 28 . 8,12			8,44			1,14	17,51	4 . 28 . 26,16	☽ 1 L.
4 . 53 . 7,53			7,94					4 . 53 . 25,68	ι Tauri.
5 . 6 . 27,55			28,44	46,19	17,75			5 . 6 . 46,19	Rigel.
5 . 15 . 46,25			46,53	4,29	17,76			5 . 16 . 4,29	β Tauri.
4 . 26 . 19,08			19,58	38,50	18,92	1,12	18,66	4 . 26 . 38,45	Aldebaran.
4 . 53 . 6,37			6,78					4 . 53 . 25,67	ι Tauri.
5 . 6 . 26,47			27,36	46,18	18,82			5 . 6 . 46,26	Rigel.
5 . 15 . 44,94			45,22	4,28	19,06			5 . 16 . 4,13	β Tauri.
5 . 26 . 20,58			20,86					5 . 26 . 39,77	☽ 1 L.
5 . 42 . 50,64			50,92					5 . 43 . 9,85	C Tauri.
5 . 46 . 5,73	5,51		6,38	25,19	18,81			5 . 46 . 25,31	α Orionis.
6 . 4 . 45,19			45,43					6 . 5 . 4,37	κ Aurigæ.
6 . 23 . 38,80	42,55		55,94	14,99	19,05			18 . 24 . 14,90	δ Ursæ Min. SP.
18 . 24 . 10,87	6,90		55,44	15,07	19,63			18 . 24 . 14,96	δ Ursæ Minoris.
15 . 44 . 46,09			} 48,49			1,03	19,78	15 . 45 . 8,94	Saturn's center.
15 . 44 . 48,78									
16 . 5 . 30,24			30,85	51,37	20,52			16 . 5 . 51,32	δ Ophiuchi.
16 . 19 . 6,97			8,16	28,76	20,60			16 . 19 . 28,64	Antares.
19 . 42 . 30,24			30,90	51,63	20,73			19 . 42 . 51,52	α Aquilæ.
21 . 17 . 39,29			} 48,17					21 . 19 . 8,87	☉'s center.
21 . 19 . 54,96									

Error of Collimation = − 1",36.
Level Error = − 2",09. From Jan. 22 = − 2",37. From Jan. 29 = − 2",65. From Feb. 5 = − 1",96.
Meridian Error from α Ophiuchi Jan. 19, by δ Ursæ Minoris Jan. 19, and δ Ursæ Minoris SP Jan. 20, allowing + 0^s,34 for loss of clock, and − 0^s,05 for change of Æ.
Meridian Error from Jan. 22 by α Orionis and δ Ursæ Minoris SP Jan. 22.
.... from Jan. 29 by δ Ursæ Minoris SP and δ Ursæ Minoris Feb. 4, allowing + 0^s,60 for loss of clock, and − 0^s10 for change of Æ.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Feb. 6	Venus 1 L.	7,0	20,9	34,0	47,5	0,9	14,3	23 . 22 . 28,0		B.
	α Andromedæ	53,0	8,7	23,9	39,1	54,1	9,7	0 . 0 . 24,8		B.
	α Ceti	47,2	0,6	14,2	27,8	41,3	54,5	2 . 54 . 7,9		B.
	Aldebaran	35,1	48,9	3,0	17,3	31,2	45,1	4 . 26 . 58,9		B.
	Ceres (cloudy)	26,4	41,3	56,2	11,2	25,7	......	4 . 36	+ 14,76	B.
	(a) β Tauri (Temp. 31°)	57,1	12,3	27,6	43,2	58,3	13,4	5 . 16 . 28,8		B.
	α Orionis	22,8	36,4	50,0	3,9	17,5	30,5	5 . 46 . 44,0		B.
Feb. 8	Aldebaran	33,1	46,9	1,0	15,1	29,0	43,1	4 . 26 . 57,0		B.
	Ceres	2,8	17,1	32,0	47,1	1,9	16,5	4 . 37 . 31,2		B.
	(a) Rigel (Temp. 40°)	41,4	55,0	8,9	22,6	36,2	49,2	5 . 7 . 3,0		B.
	β Tauri	54,9	10,1	25,8	41,0	56,1	11,4	5 . 16 . 26,7		B.
	α Orionis	21,1	34,2	48,1	2,0	15,4	28,6	5 . 46 . 42,4		B.
	δ Ursæ Minoris SP.	12.21,3	16. 6,7	19.51,6	23.34,4	27.22,5	31.10,8	6 . 34 . 55,4		B.
	Castor	5,9	21,7	38,0	53,8	9,6	25,1	7 . 24 . 41,1		B.
	☽ 1 L. (ragged)	5,0	19,8	35,0	49,3	3,4	19,0	9 . 8 . 33,3		B.
	λ Leonis	22,0	36,4	51,4	6,2	20,8	35,6	9 . 22 . 50,2		B.
	ψ Leonis	50,1	3,9	18,1	32,0	45,6	59,6	9 . 35 . 13,4		B.
	Regulus (Temp. 40°)	40,6	54,2	8,4	22,1	36,1	49,7	10 . 0 . 3,5		B.
Feb. 9	α Hydræ (Temp. 36°)	33,3	46,8	0,9	14,3	27,9	41,3	9 . 19 . 54,8		B.
	λ Leonis	21,4	36,0	50,7	5,6	20,1	34,7	9 . 22 . 49,2		B.
	ψ Leonis	49,3	3,3	17,5	31,3	45,3	59,0	9 . 35 . 13,0		B.
	(b) ☽ 2 L.	28,4	43,0	57,1	11,7	25,8	40,0	9 . 58 . 54,1		B.
	γ Leonis	56,1	10,5	25,0	39,0	53,3	8,1	10 . 11 . 21,9		B.
	ρ Leonis	12,4	26,1	39,8	53,5	7,2	20,9	10 . 24. 34,1		B.
Feb. 10	α Hydræ	32,2	45,8	59,8	13,5	27,1	40,3	9 . 19 . 53,9		B.
	Regulus (Temp. 31°)	39,1	52,7	6,7	20,6	34,2	48,1	10 . 0 . 1,8		B.
	γ Leonis	55,0	9,3	24,0	38,1	52,3	7,0	10 . 11 . 21,1		B.
	ρ Leonis	11,6	25,2	39,0	52,6	6,1	20,0	10 . 24 . 33,3		B.
	☽ 2 L.	3,3	17,1	31,7	45,4	59,2	13,2	10 . 44 . 26,8		B.
	χ Leonis	34,1	48,0	1,8	15,2	28,9	42,2	10 . 56 . 56,0		B.
	Jupiter 1 L.	32,4	......	59,7	......	26,9	......	11 . 12 . 54,0	+ 0,02	B.
	Jupiter 2 L.	......	49,3	......	16,6	......	43,5	11 . 12	– 0,02	B.
	ι Leonis	23,3	37,2	50,8	4,6	18,1	31,6	11 . 15 . 45,4		B.
Feb. 11	Castor (blazing)	3,1	18,8	34,4	51,0	6,7	22,5	7 . 24 . 38,4		B.
	Procyon	43,1	56,7	10,2	24,0	37,3	51,1	7 . 31 . 4,5		B.
	α Hydræ	31,4	45,1	58,6	12,4	26,1	39,3	9 . 19 . 53,0		B.
	Regulus (Temp. 30°)	37,8	51,7	6,0	19,3	33,2	46,8	10 . 0 . 0,7		B.
	χ Leonis	33,1	47,1	0,8	14,2	28,1	41,2	10 . 56 . 55,0		B.
	Jupiter 1 L.	7,4	.....	34,3	......	1,8	......	11 . 12 . 29,0	+ 0,02	B.
	Jupiter 2 L.	......	24,0	......	51,5	......	18,3	11 . 12	– 0,02	B.
	ι Leonis	22,2	36,0	49,6	3,5	17,1	30,9	11 . 15 . 44,4		B.
	☽ 2 L.	49,1	3,2	16,8	30,8	44,3	58,1	11 . 28 . 12,2		B.
	β Virginis	9,6	23,0	36,5	50,2	3,3	17,1	11 . 42 . 30,2		B.
	b Virginis	32,9	46,4	0,2	13,9	27,2	40,5	11 . 51 . 54,4		B.
	δ Ursæ Minoris (hazy)	......	......	......	......	27.51,4	31.35,8	18 . 35 . 23,7	– 7 . 31,06	B.
	α Aquilæ	43,8	57,4	11,0	24,8	38,4	51,7	19 . 43 . 5,3		B.
Feb. 12	☉ 1 L.	40,2	54,0	8,1	22,1	36,0	49,8	21 . 42 . 3,6		B.
	☉ 2 L.	54,4	8,4	22,7	36,4	50,0	4,0	21 . 44 . 17,9		B.
	Venus 1 L. (unsteady)	24,3	38,0	51,2	5,0	18,3	32,0	23 . 22 . 45,1		B.
	14 Eridani	36,8	50,4	4,2	18,0	31,3	45,0	3 . 8 . 58,7		C.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*.

(*a*) Considerable change of temperature between the 6th and 8th. The meridian error appears to be affected by these changes.

(*b*) Very cloudy, and limb uneven.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	
23.21.47,52		+ 18,14	48,29			1,03	19,78	23.22. 9,07	Venus 1 L.
23.59.39,05			39,37	0,38	21,01			0. 0. 0,18	α Andromedæ.
2.53.27,65			28,38	49,17	20,79		20,81	2.53.49,31	α Ceti.
4.26.17,07			17,61	38,47	20,86			4.26.38,61	Aldebaran.
4.36.10,92			11,31					4.36.32,32	Ceres.
5.15.42,95			43,27	4,25	20,98			5.16. 4,31	β Tauri.
5.46. 3,59			4,28	25,18	20,90			5.46.25,34	α Orionis.
4.26.15,03		+ 16,26	15,50	38,45	22,95	0,91	22,81	4.26.38,48	Aldebaran.
4.36.46,95			47,27					4.37.10,25	Ceres.
5. 6.22,33			23,14	46,13	22,99			5. 6.46,14	Rigel.
5.15.40,85			41,11	4,23	23,12			5.16. 4,12	β Tauri.
5.46. 1,68	1,50		2,28	25,16	22,88			5.46.25,31	α Orionis.
6.23.37,53	40,70		52,70	15,88	23,88			18.24.15,75	δ Ursæ Min. SP.
7.23.53,60			53,78	16,88	23,10			7.24.16,87	Castor.
9. 7.49,26			49,64					9. 8.12,80	☽ 1 L.
9.22. 6,09			6,43					9.22.29,60	λ Leonis.
9.34.31,81			32,29					9.34.55,46	ψ Leonis.
9.59.22,08			22,60	45,83	23,23			9.59.45,79	Regulus.
9.19.14,19			14,99	38,96	23,97	0,82	23,65	9.19.38,96	α Hydræ.
9.22. 5,39			5,73					9.22.29,70	λ Leonis.
9.34.31,24			31,72					9.34.55,70	ψ Leonis.
9.58.11,44			11,91					9.58.35,90	☽ 2 L.
10.10.39,13			39,51					10.11. 3,51	γ Leonis.
10.23.53,43			53,99					10.24.18,00	ρ Leonis.
9.19.13,23		+ 19,39	14,21	38,97	24,76	1,00	24,36	9.19.38,96	α Hydræ.
9.59.20,45			21,11	45,86	24,75			9.59.45,89	Regulus.
10.10.38,12			38,62					10.11. 3,41	γ Leonis.
10.23.52,54			53,24					10.24.18,03	ρ Leonis.
10.43.45,24			45,92					10.44.10,73	☽ 2 L.
10.56.15,17			15,90					10.56.40,72	χ Leonis.
11.12.13,27 11.12.16,45			} 15,61					11.12.40,44	Jupiter's center.
11.15. 4,43			5,11					11.15.29,94	ι Leonis.
7.23.50,70			50,96	16,87	25,91	0,98	25,46	7.24.16,72	Castor.
7.30.23,84			24,61	50,36	25,75			7.30.50,38	Procyon.
9.19.12,27			13,25	38,97	25,72			9.19.39,09	α Hydræ.
9.59.19,36			20,02	45,87	25,85			9.59.45,89	Regulus.
10.56.14,21			14,94					10.56.40,85	χ Leonis.
11.11.48,14 11.11.51,25			} 50,44					11.12.16,36	Jupiter's center.
11.15. 3,38			4,06					11.15.29,98	ι Leonis.
11.27.30,64			31,41					11.27.57,34	☽ 2 L.
11.41.49,98			50,79					11.42.16,73	β Virginis.
11.51.13,64			14,41					11.51.40,35	b Virginis.
18.24. 5,91	2,58		50,33	16,57	26,24	1,08	25,21	18.24.16,37	δ Ursæ Minoris.
19.42.24,63			25,35	51,74	26,39			19.42.51,45	α Aquilæ.
21.41.21,97 21.43.36,26			} 30,20					21.42.56,39	☉'s center.
23.22. 4,84			5,65					23.22.31,91	Venus 1 L.
3. 8.17,77			18,78				26,29	3. 8.45,21	14 Eridani.

Error of Collimation = − 1″,36.

Level Error = − 1″,96.

Meridian Error by α Orionis and δ Ursæ Minoris SP Feb. 4 = 18″,46; and by the same stars Feb. 8 = 16″,58. Excess of former = 1″,88. Adopted Meridian Error from Feb. 8 = 18″,14 − 1″,88.

Meridian Error from Feb. 10 by δ Ursæ Minoris Feb. 11 and δ Ursæ Minoris SP Feb. 12, allowing + 0s,40 for loss of clock, and − 0s,12 for change of Æ.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Feb. 12	ν Persei	51,7	9,8	28,1	46,4	4,2	22,2	3 . 34 . 40,4		C.
	m^2 Eridani	30,4	45,0	0,0	14,8	29,5	44,0	3 . 40 . 58,9		C.
	71 Tauri	59,0	12,8	27,0	40,9	54,7	8,7	4 . 17 . 22,6		C.
	Aldebaran	29,2	43,4	57,3	11,5	25,2	39,2	4 . 26 . 53,1		C.
	μ Leporis	30,6	44,5	58,7	13,0	26,8	40,9	5 . 5 . 54,6		C.
	(a) Rigel	......	......	......	......	32,0	45,7	5 . 6 . 59,4	− 27,17	C.
	(b) ο Orionis	22,8	36,3	50,0	3,4	16,7	30,1	5 . 13 . 43,5		C.
	θ^1 Orionis	18,6	32,0	45,5	59,2	12,7	26,0	5 . 27 . 39,6		C.
	(c) A.S.C. 701	38,7	52,5	6,4	20,6	34,3	48,0	5 . 34 . 2,0		C.
	α Orionis (flaring)	17,4	30,7	44,6	58,2	11,4	25,0	5 . 46 . 38,5		C.
	l Orionis	3,6	17,3	31,0	44,8	58,2	11,8	6 . 8 . 25,5		C.
	δ Ursæ Minoris SP.	......	16. 1,3	19.46,0	23.30,6	27.16,8	31. 5,3	6 . 34 . 51,3	− 1 . 52,66	C.
	Castor	2,0	17,9	34,0	50,2	5,8	21,7	7 . 24 . 37,5		C.
	Procyon	42,4	56,0	9,7	23,3	36,5	50,0	7 . 31 . 3,5		C.
	Pollux	12,4	27,6	43,0	58,4	13,7	28,8	7 . 35 . 44,0		C.
	55 Camelopardi	54.22,4	54.59,7	55.37,7	56.15,0	56.52,2	57.30,0	7 . 58 . 6,9		C.
	A.S.C. 997	19,3	33,0	46,7	0,7	14,1	27,8	8 . 2 . 41,4		C.
	(d) ϕ^2 Cancri	48,0	3,0	18,2	33,7	48,8	3,8	8 . 17 . 18,9		C.
	h Cancri	43,7	57,3	11,1	25,0	38,6	52,0	8 . 24 . 5,7		C.
	d Ursæ Majoris	17.41,3	18.21,2	19. 1,9	19.42,6	20.22,8	21. 2,8	9 . 21 . 43,0		C.
	Regulus (Temp. 29°)	37,0	51,0	4,8	18,7	32,4	46,0	9 . 59 . 59,9		C.
	i Sextantis	14,1	27,3	41,0	54,6	8,0	21,3	10 . 18 . 34,8		C.
	(e) *k* Sextantis	8,6	22,0	35,5	49,1	2,5	15,8	10 . 21 . 29,2		C.
	34 Sextantis	8,7	22,3	35,8	49,6	2,8	16,3	10 . 34 . 29,8		C.
	n Sextantis	......	55,5	9,0	22,8	36,0	49,4	10 . 37 . 2,8	− 6,75	C.
	Jupiter 1 L.	42,2	......	9,4	......	36,2	......	11 . 12 . 3,4	+ 0,02	C.
	Jupiter 2 L.	......	58,6	......	26,0	......	52,8	11 . 11	− 0,02	C.
	(d) 17 Hydræ et Crat.	2,7	17,9	33,2	48,7	3,9	19,0	11 . 24 . 34,1		C.
	β Leonis	39,9	53,7	7,8	21,5	35,4	49,3	11 . 41 . 3,4		C.
	b Virginis	32,4	45,6	59,2	13,0	26,5	39,8	11 . 51 . 53,2		C.
	☽ 2 L.	45,6	59,2	13,1	27,0	40,5	54,2	12 . 11 . 7,9		C.
	α Aquilæ	42,6	56,3	10,0	23,9	37,1	50,8	19 . 43 . 4,4		B.
Feb. 13	Procyon (Temp. 30°)	41,1	54,8	8,3	22,2	35,3	49,1	7 . 31 . 2,4		B.
	Pollux	11,1	26,0	41,6	57,2	12,3	27,3	7 . 35 . 42,7		B.
	11 Argus	42,1	57,1	11,7	26,1	40,4	54,9	7 . 50 . 9,5		B.
	55 Camelopardi	21,4	58,3	36,1	13,9	50,8	28,0	7 . 58 . 5,7		B.
	A.S.C. 997	18,0	31,7	45,3	59,1	12,7	26,1	8 . 2 . 39,9		B.
	(d) ϕ^2 Cancri	46,7	1,9	17,0	32,0	47,3	2,4	8 . 17 . 17,1		B.
	h Cancri	42,0	55,8	10,0	23,5	37,1	50,8	8 . 24 . 4,6		B.
	Saturn 1 L.	22,4	......	51,1	......	19,2	......	15 . 46 . 47,3	+ 0,02	B.
	Saturn 2 L.	......	40,1	......	8,4	......	36,3	15 . 46	− 0,02	B.
	δ Ophiuchi	42,1	55,5	9,1	23,1	36,2	49,5	16 . 6 . 3,1		B.
	Antares	14,6	29,5	44,5	59,8	14,8	29,3	16 . 19 . 44,2		B.
	δ Ursæ Minoris	12.43,4	16.30,7	20.17,5	24. 6,2	27.49,6	31.34,5	18 . 35 . 19,8		B.
	α Aquilæ	41,7	55,3	9,1	22,7	36,2	49,7	19 . 43 . 3,5		B.
Feb. 14	⊙ 1 L.	28,4	42,2	56,1	10,4	24,1	37,8	21 . 49 . 51,6		B.
	⊙ 2 L.	42,1	56,0	10,1	23,7	37,4	51,3	21 . 52 . 5,1		B.
	α Pegasi	30,5	43,7	57,4	11,6	25,3	39,1	22 . 56 . 53,0		B.
	Venus 1 L. (unsteady)	20,9	34,0	47,4	1,1	14,3	28,0	23 . 21 . 41,2		B.
	α Arietis	49,7	4,1	19,0	33,7	48,0	2,6	1 . 58 . 17,0		B.
	14 Eridani	34,3	48,1	1,9	15,8	29,2	43,2	3 . 8 . 56,4		B.
	ν Persei	......	7,6	25,8	44,1	2,1	20,0	3 . 34 . 38,1	− 9,07	B.
	m^2 Eridani	27,9	42,6	57,7	12,5	27,2	42,1	3 . 40 . 56,8		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*.

(a) Hurried: too short an interval from the preceding.
(b) Two stars near each other; this the following one.
(c) The minutes are certainly correct.
(d) Double star: the following one observed.
(e) The counting being found 1ˢ in excess, the wires have been diminished 1ˢ.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
3.33.46,12		+19,39	46,14			1,08	26,29	3.34.12,59	ν Persei.
3.40.14,66			15,91					3.40.42,37	m² Eridani.
4.16.40,81			41,42					4.17. 7,90	71 Tauri.
4.26.11,27			11,86	38,39	26,53			4.26.38,35	Aldebaran.
5. 5.12,73			13,85					5. 5.40,37	μ Leporis.
5. 6.18,53			19,52	46,08	26,56			5. 6.46,04	Rigel.
5.13. 3,26			4,14					5.13.30,66	*o* Orionis.
5.26.59,09			0,05					5.27.26,59	θ¹ Orionis.
5.33.20,35			20,98					5.33.47,52	A.S.C. 701.
5.45.57,97			58,72	25,12	26,40			5.46.25,27	α Orionis.
6. 7.44,60			45,30					6. 8.11,86	*l* Orionis.
6.23.32,56	35,73		50,04	16,71	26,67			18.24.16,62	δ Ursæ Min. SP.
7.23.49,87			50,13	16,87	26,74			7.24.16,75	Castor.
7.30.23,06			23,83	50,36	26,53			7.30.50,46	Procyon.
7.34.58,27			58,61	25,17	26,56			7.35.25,24	Pollux.
7.56.14,84			13,21					7.56.39,86	55 Camelopardi.
8. 2. 0,42			1,12					8. 2.27,77	A.S.C. 997.
8.16.33,48			33,87					8.17. 0,53	φ² Cancri.
8.23.24,77			25,45					8.23.52,12	*h* Cancri.
9.19.42,23			40,37					9.20. 7,08	*d* Ursæ Majoris.
9.59.18,55			19,21	45,88	26,67			9.59.45,95	Regulus.
10.17.54,44			55,30					10.18.22,05	*i* Sextantis.
10.20.48,96			49,86					10.21.16,62	*k* Sextantis.
10.33.49,33			50,12					10.34.16,89	34 Sextantis.
10.36.22,50			23,31					10.36.50,08	*n* Sextantis.
11.11.22,82 11.11.25,78			} 25,05					11.11.51,84	Jupiter's center.
11.23.48,50			49,82					11.24.16,62	17 Hydræ et Crat.
11.40.21,57			22,18	48,95	26,77			11.40.49,00	β Leonis.
11.51.12,81			13,58					11.51.40,40	*b* Virginis.
12.10.26,79			27,67					12.10.54,51	☽ 2 L.
19.42.23,59			24,31	51,76	27,45	1,22	26,35	19.42.51,66	α Aquilæ.
7.30.21,88		+17,10	22,54	50,35	27,81		27,57	7.30.50,49	Procyon.
7.34.56,89			57,16	25,16	28,00			7.35.25,12	Pollux.
7.49.25,97			27,03					7.49.55,00	11 Argus.
7.56.13,46			11,97					7.56.39,94	55 Camelopardi.
8. 1.58,97			59,57					8. 2.27,54	A.S.C. 997.
8.16.32,05			32,37					8.17. 0,36	φ² Cancri.
8.23.23,40			23,98					8.23.51,98	*h* Cancri.
15.45. 5,02 15.45. 8,25			} 7,62			1,18	27,51	15.45.35,90	Saturn's center.
16. 5.22,65			23,21	51,63	28,42			16. 5.51,51	δ Ophiuchi.
16.18.59,53			0,65	29,05	28,40			16.19.28,96	Antares.
18.24. 3,10	59,77		48,96	17,13	28,17			18.24.17,37	δ Ursæ Minoris.
19.42.22,60			23,21	51,78	28,57			19.42.51,69	α Aquilæ.
21.49.10,08 21.51.23,67			} 17,79					21.50.46,37	⊙'s center.
22.55.11,51			12,04	40,56	28,52			22.55.40,68	α Pegasi.
23.21. 0,98			1,67					23.21.30,33	Venus 1 L.
1.57.33,44			33,84	2,75	28,91		28,69	1.58. 2,63	α Arietis.
3. 8.15,56			16,44					3. 8.45,28	14 Eridani.
3.33.43,88			43,86					3.34.12,73	ν Persei.
3.40.12,40			13,48					3.40.42,35	m² Eridani.

Error of Collimation = − 1″,36.

Level Error = − 1″,96.

Meridian Error by δ Ursæ Minoris Feb. 13, and δ Ursæ Minoris SP Feb. 14 = 16″,84, allowing 0s,57 for loss of clock, and − 0s,13 for change of Æ; and that by δ Ursæ Minoris SP Feb. 14, and δ Ursæ Minoris Feb. 15 = 17″,36, allowing 1s,41 for loss of clock, and − 0s,39 for change of Æ. The mean is used from Feb. 13.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Feb. 14	71 Tauri	56,6	10,3	24,3	38,4	52,1	6,0	4 . 17 . 20,0		B.
	Aldebaran	26,9	41,0	54,9	9,2	23,1	37,0	4 . 26 . 51,0		B.
	Ceres	30,1	45,0	59,9	15,0	29,5	44,1	4 . 39 . 59,0		B.
	(*a*) θ^1 Orionis	16,1	29,6	43,2	56,9	10,3	24,0	5 . 27 . 37,3		B.
	A.S.C. 701	36,2	50,3	4,1	18,2	32,0	45,6	5 . 33 . 59,4		B.
	α Orionis	14,8	28,4	42,1	55,6	9,3	22,6	5 . 46 . 36,1		B.
	l Orionis	1,3	15,0	28,6	42,3	56,1	9,4	6 . 8 . 23,1		B.
	δ Ursæ Minoris SP	12.16,9	16. 2,2	19.46,6	23.30,4	27.17,7	31. 6,3	6 . 34 . 51,5		B.
	Castor (Temp. 31°)	0,1	15,6	31,7	48,0	3,5	19,3	7 . 24 . 35,2		B.
	Procyon	40,1	53,7	7,2	21,1	34,2	47,3	7 . 31 . 1,2		B.
	Saturn 1 L.	31,0	… …	59,2	… …	27,3	… …	15 . 46 . 55,9	+ 0,02	B.
	Saturn 2 L.	… …	48,1	… …	16,8	… …	44,6	15 . 46 . ….	– 0,02	B.
	δ Ophiuchi	41,1	54,6	8,1	21,8	35,2	48,4	16 . 6 . 1,9		B.
Feb. 15	⊙ 1 L.	21,2	35,1	49,2	3,2	16,8	30,7	21 . 53 . 44,3		B.
	⊙ 2 L.	34,9	48,8	2,7	16,3	30,1	44,0	21 . 55 . 57,7		B.
	Saturn 1 L.	38,6	… …	7,1	… …	35,3	… …	15 . 47 . 3,8	+ 0,02	B.
	Saturn 2 L.	… …	56,0	… …	24,2	… …	52,4	15 . 46 . ….	– 0,02	B.
	δ Ophiuchi	40,2	53,7	7,2	21,0	34,2	47,5	16 . 6 . 0,9		B.
	Antares	12,7	27,3	42,9	58,1	12,9	27,5	16 . 19 . 42,3		B.
	δ Ursæ Minoris	12.44,4	16.29,6	20.17,5	24. 5,2	27.47,7	31.33,3	18 . 35 . 18,8		B.
	α Aquilæ	39,8	53,3	7,1	20,7	34,2	47,7	19 . 43 . 1,4		B.
Feb. 16	⊙ 1 L.	13,4	27,3	41,1	55,2	8,9	22,4	21 . 57 . 36,1		B.
	⊙ 2 L.	27,0	40,5	54,6	8,4	22,0	36,0	21 . 59 . 49,5		B.
	Venus 1 L.	41,2	54,8	8,4	22,0	35,2	48,4	23 . 20 . 2,1		B.
	Procyon	38,1	51,6	5,3	18,9	32,2	46,0	7 . 30 . 59,3		B.
	Pollux	8,1	23,1	38,4	54,1	9,2	24,3	7 . 35 . 39,7		B.
	α Hydræ	26,1	39,8	53,4	7,2	20,9	34,1	9 . 19 . 47,6		B.
	Regulus	32,7	46,8	0,7	14,4	28,2	42,1	9 . 59 . 55,4		B.
	Jupiter 1 L. (cloudy)	56,1	… …	23,3	… …	50,4	… …	11 . 10 . 17,3	+ 0,02	B.
	Jupiter 2 L.	… …	12,7	… …	40,0	… …	7,0	11 . 10 . ….	– 0,02	B.
Feb. 19	δ Ursæ Minoris SP	12.12,7	15.55,5	19.40,6	23.25,4	27.13,3	31. 2,2	6 . 34 . 46,2		B.
	Castor	55,1	10,6	26,7	42,4	58,3	14,1	7 . 24 . 29,8		B.
	Procyon	35,2	48,3	2,2	15,8	29,1	42,3	7 . 30 . 55,9		B.
	Pollux	4,8	19,9	35,3	50,9	6,0	21,2	7 . 35 . 36,5		B.
	(*b*) 55 Camelopardi	15,2	52,1	30,0	8,0	44,6	21,9	7 . 57 . 59,1		B.
	(*b*) ϕ^2 Cancri	40,2	54,9	10,7	26,1	41,1	56,0	8 . 17 . 11,2		B.
	h Cancri	36,1	49,8	3,6	17,3	30,9	44,1	8 . 23 . 57,7		B.
	Jupiter 1 L.	33,1	… …	0,2	… …	27,2	… …	11 . 8 . 54,3	+ 0,02	B.
	Jupiter 2 L.	… …	50,0	… …	17,1	… …	44,0	11 . 8 . ….	– 0,02	B.
	(*b*) δ Ursæ Minoris	12.40,6	16.26,5	20.14,3	24. 1,7	27.44,8	31.39,4	18 . 35 . 15,2		B.
	α Aquilæ	35,6	49,0	2,8	16,6	30,1	43,6	19 . 42 . 57,4		B.
	Mercury 2 L. (cloudy)	… …	… …	36,6	51,0	5,8	20,3	20 . 35 . 35,0	– 14,35	B.
Feb. 20	⊙ 1 L.	35,1	48,8	2,7	16,7	30,1	43,6	22 . 12 . 57,4		B.
	⊙ 2 L.	48,0	1,5	15,0	29,2	42,5	56,3	22 . 15 . 10,1		B.
	Venus 1 L.	40,9	54,2	8,0	21,4	34,8	48,0	23 . 15 . 1,7		B.
	A.S.C. 340	47,2	7,7	28,5	49,3	9,6	30,0	2 . 57 . 50,5		B.
	ν Persei	42,7	1,1	19,1	37,4	55,4	13,5	3 . 34 . 31,6		B.
	Aldebaran	20,6	34,9	48,7	2,8	16,8	30,6	4 . 26 . 44,4		B.
	Rigel	29,1	42,8	56,2	10,1	23,4	37,1	5 . 6 . 50,7		B.
	δ Ursæ Minoris SP	12.10,7	15.56,6	19.41,6	23.25,8	27.12,5	30.59,2	6 . 34 . 46,4		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*. Transit levelled Feb. 20, 2^h.

(*a*) The wires have each been diminished 1^s.

(*b*) Very faint.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	
4 . 16 . 38,25		+ 17,10	38,77			1,18	28,69	4 . 17 . 7,67	71 Tauri.
4 . 26 . 9,02			9,52	38,36	28,84			4 . 26 . 38,43	Aldebaran.
4 . 39 . 14,66			15,44					4 . 39 . 44,36	Ceres.
5 . 26 . 56,77			57,60					5 . 27 . 26,56	θ^1 Orionis.
5 . 33 . 17,97			18,50					5 . 33 . 47,46	A.S.C. 701.
5 . 45 . 55,56			56,20	25,09	28,89			5 . 46 . 25,17	α Orionis.
6 . 7 . 42,25			42,85					6 . 8 . 11,84	*l* Orionis.
6 . 23 . 33,09	36,26		48,88	17,26	28,38			18 . 24 . 17,88	δ Ursæ Min. SP.
7 . 23 . 47,63			47,83	16,86	29,03			7 . 24 . 16,88	Castor.
7 . 30 . 20,68			21,34	50,35	29,01			7 . 30 . 50,40	Procyon.
15 . 46 . 13,37			15,91			1,12	28,77	15 . 46 . 45,42	Saturn's center.
15 . 46 . 16,48									
16 . 5 . 21,58			22,14	51,66	29,52			16 . 5 . 51,66	δ Ophiuchi.
21 . 53 . 2,93			10,55					21 . 54 . 40,34	⊙'s center.
21 . 55 . 16,36									
15 . 46 . 21,22			23,68			0,98	29,72	15 . 46 . 54,05	Saturn's center.
15 . 46 . 24,18									
16 . 5 . 20,67			21,23	51,69	30,46			16 . 5 . 51,61	δ Ophiuchi.
16 . 18 . 57,67			58,79	29,12	30,33			16 . 19 . 29,17	Antares.
18 . 24 . 2,36	59,03		48,22	17,68	29,46			18 . 24 . 18,69	δ Ursæ Minoris.
19 . 42 . 20,60			21,21	51,82	30,61			19 . 42 . 51,73	α Aquilæ.
21 . 56 . 54,91			2,51					21 . 58 . 33,12	⊙'s center.
21 . 59 . 8,29									
23 . 19 . 21,73			22,42					23 . 19 . 53,09	Venus 1 L.
7 . 30 . 18,77			19,43	50,33	30,90		30,70	7 . 30 . 50,44	Procyon.
7 . 34 . 53,84			54,11	25,15	31,04			7 . 34 . 25,12	Pollux.
9 . 19 . 7,02			7,87	38,99	31,12			9 . 19 . 38,95	α Hydræ.
9 . 59 . 14,33			14,89	45,91	31,02			9 . 59 . 46,00	Regulus.
11 . 9 . 36,79			38,98					11 . 10 . 10,14	Jupiter's center.
11 . 9 . 39,88									
6 . 23 . 27,99	31,80	+ 18,06	45,13	18,56	33,43	1,10	33,85	18 . 24 . 19,27	δ Ursæ Min. SP.
7 . 23 . 42,43			42,61	16,83	34,22			7 . 24 . 16,80	Castor.
7 . 30 . 15,54			16,21	50,32	34,11			7 . 30 . 50,40	Procyon.
7 . 34 . 50,65			50,90	25,13	34,23			7 . 35 . 25,10	Pollux.
7 . 56 . 7,27			5,58					7 . 56 . 39,79	55 Camelopardi.
8 . 16 . 25,75			26,05					8 . 17 . 0,28	ϕ^2 Cancri.
8 . 23 . 17,07			17,65					8 . 23 . 51,88	*h* Cancri.
11 . 8 . 13,72			16,02					11 . 8 . 50,38	Jupiter's center.
11 . 8 . 17,01									
18 . 24 . 0,36	56,32		44,91	18,68	33,77	1,08	33,87	18 . 24 . 19,61	δ Ursæ Minoris.
19 . 42 . 16,44			17,07	51,90	34,83			19 . 42 . 51,83	α Aquilæ.
20 . 34 . 51,39			52,44					20 . 35 . 27,24	Mercury 2 L.
22 . 12 . 16,34			23,58					22 . 13 . 58,46	⊙'s center.
22 . 14 . 28,95									
23 . 14 . 21,28			21,99					23 . 14 . 56,91	Venus 1 L.
2 . 56 . 48,97			48,66				34,95	2 . 57 . 23,74	A.S.C. 340.
3 . 33 . 37,26			37,19					3 . 34 . 12,30	ν Persei.
4 . 26 . 2,68			3,18	38,27	35,09			4 . 26 . 38,33	Aldebaran.
5 . 6 . 9,91			10,80	45,96	35,16			5 . 6 . 45,98	Rigel.
6 . 23 . 27,54	31,35		44,68	18,80	34,12			18 . 24 . 19,92	δ Ursæ Min. SP.

Error of Collimation = – 1",36.

Level Error = – 1",96. From Feb. 19 = – 2",72.

Meridian Error from Feb. 19 by δ Ursæ Minoris SP, δ Ursæ Minoris and δ Ursæ Minoris SP Feb. 19 and 20.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Feb. 22	⊙ 1 L. } (cloudy & unsteady)	12,2	26,2	40,0	53,4	7,1	20,9	22 . 20 . 34,4		B.
	⊙ 2 L. }	24,0	38,0	......	......	......	33,2	22 . 22 . 46,9	+ 0,07	B.
	Aldebaran	18,4	32,6	46,8	0,8	14,7	28,5	4 . 26 . 42,5		B.
	Ceres	......	......	43,4	58,7	13,3	28,4	4 . 44	− 7,51	B.
	Rigel	27,2	40,4	54,4	8,1	21,4	35,0	5 . 6 . 48,6		B.
	β Tauri	40,5	55,9	11,3	26,8	42,0	57,0	5 . 16 . 12,4		B.
Feb. 24	Castor	49,4	5,3	21,4	37,3	53,0	8,8	7 . 24 . 24,7		B.
	Procyon	29,6	43,0	56,8	10,3	23,9	37,1	7 . 30 . 50,7		B.
	Pollux	59,2	14,6	30,0	45,5	1,0	16,2	7 . 35 . 31,2		B.
	11 Argus	30,9	45,1	0,1	14,7	29,1	43,4	7 . 49 . 58,0		B.
	55 Camelopardi	9,4	46,6	24,4	2,6	39,3	16,7	7 . 57 . 53,9		B.
	A.S.C. 997	6,8	20,4	34,4	48,1	1,7	15,1	8 . 2 . 28,9		B.
	ϕ^2 Cancri	34,9	50,5	5,9	20,7	35,8	50,8	8 . 17 . 6,2		B.
	h Cancri	30,9	44,5	58,4	12,2	25,8	39,1	8 . 23 . 53,1		B.
	d Ursæ Majoris	28,2	8,7	48,8	29,9	9,4	49,7	9 . 21 . 30,0		B.
	Regulus (Temp. 40°)	24,6	38,1	51,9	6,0	19,5	33,2	9 . 59 . 47,1		B.
	k Sextantis	55,6	9,0	22,9	36,4	49,9	3,2	10 . 21 . 16,8		B.
	34 Sextantis	56,4	10,1	23,2	37,0	50,4	3;8	10 . 34 . 17,1		B.
	Jupiter 1 L.	9,3	......	36,4	......	3,9	......	11 . 6 . 30,4	+ 0,02	B.
	Jupiter 2 L.	......	26,0	......	53,3	......	20,2	11 . 6	− 0,02	B.
Feb. 28	(*a*) Aldebaran (blazing)	12,6	26,5	41,1	54,4	8,8	22,9	4 . 26 . 36,9		B.
	μ Leporis	14,1	28,1	42,1	55,7	10,2	24,2	5 . 5 . 38,1		B.
	(*b*) *o* Orionis	6,4	20,0	33,1	46,4	59,9	13,8	5 . 13 . 27,1		B.
	θ^1 Orionis	2,1	15,7	29,2	42,3	56,1	9,9	5 . 27 . 23,2		B.
	A.S.C. 701	21,9	36,1	49,5	3,4	17,2	31,1	5 . 33 . 45,1		B.
	α Orionis	0,8	14,3	27,7	41,2	54,7	8,3	5 . 46 . 21,9		B.
	l Orionis	46,9	0,8	14,1	27,7	41,4	55,1	6 . 8 . 9,0		B.
	δ Ursæ Minoris SP	12.18,3	16. 2,3	19.52,8	23.40,2	27.23,5	31. 7,7	6 . 34 . 53,8		B.
	Castor	45,5	1,4	17,1	32,9	48,9	5,1	7 . 24 . 20,8		B.
	Procyon	26,0	39,4	53,1	6,5	20,1	33,4	7 . 30 . 47,0		B.
	Pollux	55,9	11,1	26,2	41,2	56,7	12,1	7 . 35 . 27,4		B.
	11 Argus	27,7	42,0	56,3	11,0	25,4	40,1	7 . 49 . 54,8		B.
	55 Camelopardi	4,2	41,7	18,8	56,1	33,8	11,7	7 . 57 . 49,0		B.
	A.S.C. 997	3,1	16,8	30,0	43,5	57,2	11,1	8 . 2 . 24,8		B.
	ϕ^2 Cancri	31,4	46,8	1,6	16,5	32,1	47,1	8 . 17 . 2,3		B.
	h Cancri	27,1	40,9	54,5	8,1	22,0	35,7	8 . 23 . 49,3		B.
	d Ursæ Majoris	22,8	3,6	43,3	23,1	4,2	44,7	9 . 21 . 25,2		B.
Mar. 3	ι Tauri	55,9	10,0	24,4	38,9	53,3	8,1	4 . 53 . 22,3		B.
	☽ 1 L.	56,2	11,6	26,9	41,7	57,0	12,7	5 . 7 . 28,0		B.
	β Tauri (flaring)	31,9	46,8	2,1	17,0	32,7	48,1	5 . 16 . 3,4		B.
	l Aurigæ	41,8	57,1	13,0	28,1	43,9	59,7	5 . 28 . 15,2		B.
	C Tauri	37,6	52,7	8,0	22,8	38,1	53,3	5 . 43 . 8,9		B.
	α Orionis	57,8	11,1	24,7	38,1	52,1	5,7	5 . 46 . 19,0		B.
	l Orionis	44,1	57,8	11,4	24,7	38,8	52,3	6 . 8 . 6,0		B.
	q Camelopardi	35,7	13,3	50,7	27,7	5,7	43,6	6 . 37 . 20,8		B.
	Castor (Temp. 40°)	42,7	58,4	14,5	30,1	46,0	2,2	7 . 24 . 18,0		B.
	Procyon	23,2	36,5	50,1	3,4	17,1	30,8	7 . 30 . 44,2		B.
	Pollux	53,0	8,1	23,3	38,4	54,1	9,7	7 . 35 . 24,3		B.
	11 Argus	24,6	39,0	53,4	8,1	22,8	37,2	7 . 49 . 52,0		B.
	55 Camelopardi	1,6	38,7	16,1	53,2	30,7	9,1	7 . 57 . 46,1		B.
	A.S.C. 997	0,1	13,6	27,1	40,8	54,5	8,4	8 . 2 . 22,2		B.
	ϕ^2 Cancri	28,6	43,9	58,9	13,7	29,1	44,2	8 . 16 . 59,5		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*.
From Feb. 28............. EAST. .... *ABCDEFG*.
Feb. 28, $4\frac{1}{2}^h$. Transit reversed and twice levelled, and Error of Collimation determined.
March 6, 22^h. Transit levelled.

(*a*) Before this observation the screws for the horizontal adjustment of the axis were moved to diminish the Meridian Error.

(*b*) The lower (as seen in the Telescope) of two close stars.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	
22.19.53,46 22.22. 5,59		+18,06	0,43			1,06	35,89	22.21.37,31	⊙'s center.
4.26. 0,61			1,11	38,24	37,13		36,95	4.26.38,26	Aldebaran.
4.44.58,44			58,77					4.45.35,93	Ceres.
5. 6. 7,87			8,76	45,93	37,17			5. 6.45,93	Rigel.
5.15.26,56			26,83	4,03	37,20			5.16. 4,01	β Tauri.
7.23.37,13			37,31	16,78	39,47	1,08	39,12	7.24.16,76	Castor.
7.30.10,20			10,87	50,27	39,40			7.30.50,33	Procyon.
7.34.45,39			45,64	25,09	39,45			7.35.25,10	Pollux.
7.49.14,47			15,58					7.49.55,05	11 Argus.
7.56. 1,84			0,15					7.56.39,63	55 Camelopardi.
8. 1.47,92			48,52					8. 2.28,00	A.S.C. 997.
8.16.20,68			20,98					8.17. 0,47	ϕ^2 Cancri.
8.23.12,00			12,58					8.23.52,08	*h* Cancri.
9.19.29,24			27,31					9.20. 6,85	*d* Ursæ Majoris.
9.59. 5,77			6,33	45,97	39,64			9.59.45,90	Regulus.
10.20.36,26			37,05					10.21.16,63	*k* Sextantis.
10.33.36,86			37,55					10.34.17,15	34 Sextantis.
11. 5.50,02 11. 5.53,15			52,24					11. 6.31,86	Jupiter's center.
4.25.54,74		+2,06	54,76	38,14	43,38	1,00	43,33	4.26.38,27	Aldebaran.
5. 4.56,07			56,23					5. 5.39,77	μ Leporis.
5.12.46,67			46,77					5.13.30,32	o Orionis.
5.26.42,64			42,76					5.27.26,32	θ^1 Orionis.
5.33. 3,47			3,50					5.33.47,06	A.S.C. 701.
5.45.41,27	41,23		41,33	24,90	43,57			5.46.24,90	α Orionis.
6. 7.27,86			27,91					6. 8.11,49	*l* Orionis.
6.23.36,94	37,76		39,28	21,26	41,98			18.24.22,88	δ Ursæ Min. SP.
7.23.33,10			33,06	16,73	43,67			7.24.16,70	Castor.
7.30. 6,50	6,47		6,57	50,24	43,67			7.31.50,21	Procyon.
7.34.41,51			41,47	25,05	43,58			7.35.25,12	Pollux.
7.49.11,04			11,24					7.49.54,90	11 Argus.
7.55.56,47			56,10					7.56.39,76	55 Camelopardi.
8. 1.43,79			43,84					8. 2.27,50	A.S.C. 997.
8.16.16,83			16,81					8.17. 0,49	ϕ^2 Cancri.
8.23. 8,23			8,27					8.23.51,95	*h* Cancri.
9.19.23,84			23,44					9.20. 7,16	*d* Ursæ Majoris.
4.52.38,99		+2,38	39,01			0,97	46,18	4.53.25,39	ι Tauri.
5. 6.42,01			41,99					5. 7.28,38	☽ 1 L.
5.15.17,43			17,40	3,87	46,47			5.16. 3,79	β Tauri.
5.27.28,40			28,36					5.28.14,76	*l* Aurigæ.
5.42.23,05			23,02					5.43. 9,43	*C* Tauri.
5.45.38,36			38,43	24,85	46,42			5.46.24,84	α Orionis.
6. 7.25,01			25,07					6. 8.11,50	*l* Orionis.
6.35.28,22			27,82					6.36.14,27	*q* Camelopardi.
7.23.30,27			30,22	16,70	46,48			7.24.16,70	Castor.
7.30. 3,61			3,69	50,21	46,52			7.30.50,17	Procyon.
7.34.38,70			38,67	25,02	46,35			7.35.25,16	Pollux.
7.49. 8,16			8,39					7.49.54,89	11 Argus.
7.55.53,64			53,24					7.56.39,74	55 Camelopardi.
8. 1.40,95			41,01					8. 2.27,51	A.S.C. 997.
8.16.13,98			13,96					8.17. 0,47	ϕ^2 Cancri.

Error of Collimation = − 1″,36. From Feb. 28 = + 1″,62.

Level Error = − 2″,72. From Feb. 28 = − 3″,12. From March 3 = − 3″,18.

By the bisections of Grantchester cross, in the reversion of the Transit on Feb. 28, the Meridian Error = + 3″,28, supposing the cross 14″,56 West of the Meridian. Adopted Meridian Error from Feb. 28 = 3″,28 − 1″,22. (See Introduction.)

Meridian Error from March 3 by bisection of Grantchester cross March 6, with correction − 1″,22.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Mar. 3	*h* Cancri..............	24,3	38,1	51,7	5,1	18,9	33,1	8 . 23 . 46,2		B.
	d Ursæ Majoris.......	20,2	0,7	40,7	20,6	1,5	42,1	9 . 21 . 22,0		B.
	Regulus...............	18,4	31,7	45,4	59,2	13,3	27,1	9 . 59 . 40,7		B.
	Jupiter 1 L. ... (cloudy)	42,0	... ...	9,0	... ...	36,3	... ...	11 . 3 . 3,0	− 0,02	B.
	Jupiter 2 L.	... ...	58,6	... ...	25,2	... ...	52,6	11 . 2	+ 0,02	B.
Mar. 6	(*a*) ⊙ 1 L..............	7,2	20,6	33,0	46,4	0,2	13,7	23 . 5 . 27,2		B.
	⊙ 2 L..............	16,3	30,0	43,3	57,0	10,7	24,0	23 . 7 . 37,9		B.
	71 Tauri............	36,4	50,4	3,9	17,9	31,8	45,8	4 . 16 . 59,7		B.
	Aldebaran............	7,0	20,7	34,8	48,5	2,5	16,7	4 . 26 . 30,8		B.
	μ Leporis............	8,4	22,2	36,1	50,0	4,1	18,3	5 . 5 . 32,2		B.
	(*b*) *l* Urigæ............	39,0	54,1	9,9	25,2	41,0	56,8	5 . 28 . 12,2		B.
	A.S.C. 701...........	16,3	30,1	43,7	57,6	11,5	25,5	5 . 33 . 39,3		B.
	C Tauri..............	34,8	49,7	5,1	20,0	35,2	50,9	5 . 43 . 6,1		B.
	l Orionis............	41,1	54,9	8,6	22,1	35,7	49,4	6 . 8 . 3,0		B.
	δ Ursæ Minoris SP ...	12.13,8	15.58,8	19.46,5	23.34,3	27.17,2	31. 2,4	6 . 34 . 47,6		B.
	Castor..............	39,9	55,7	11,4	27,1	43,0	59,1	7 . 24 . 15,0		B.
	Procyon..............	20,1	33,7	47,1	0,6	14,0	28,0	7 . 30 . 41,3		B.
	κ Geminorum.........	7,2	22,0	36,7	51,4	6,5	21,2	7 . 34 . 36,0		B.
	11 Argus............	21,9	36,0	50,7	5,1	19,6	34,3	7 . 49 . 49,0		B.
	☽ 1 L..............	16,1	31,3	46,4	1,5	17,0	32,3	7 . 59 . 47,3		B.
	ϕ^2 Cancri............	25,9	40,7	55,9	11,0	26,1	41,3	8 . 16 . 56,6		B.
	h Cancri.............	21,7	35,4	48,7	2,3	16,0	30,0	8 . 23 . 43,6		B.
	γ Cancri..............	22,8	37,2	51,7	6,0	20,7	35,3	8 . 33 . 49,8		B.
	Regulus..............	15,8	29,0	42,7	56,3	10,2	24,1	9 . 59 . 38,0		B.
	k Sextantis............	46,5	0,2	13,5	27,0	40,3	54,0	10 . 21 . 7,4		B.
	34 Sextantis..........	47,1	0,8	14,1	27,4	41,0	54,5	10 . 34 . 8,1		B.
	Jupiter 1 L..........	12,1	... ...	39,1	... ...	6,8	... ...	11 . 1 . 33,4	− 0,02	B.
	Jupiter 2 L..........	... ...	28,7	... ...	55,7	... ...	23,3	11 . 1	+ 0,02	B.
	δ Ursæ Minoris.......	12.18,6	16. 5,5	19.48,2	23.31,4	27.18,2	31. 7,7	18 . 34 . 53,3		B.
	α Aquilæ............	21,4	35,1	48,4	2,1	15,9	29,5	19 . 42 . 43,0		B.
	β Aquilæ............	50,4	4,0	17,3	30,7	44,2	58,1	19 . 47 . 11,5		B.
	Mercury 2 L..... (faint)	37,1	50,7	4,5	18,4	32,3	46,4	22 . 3 . 0,4		B.
	Venus 2 L..... (cloudy)	11,4	24,7	38,3	52,2	5,2	18,8	22 . 43 . 32,2		B.
Mar. 7	⊙ 2 L........... (hazy)	57,3	11,0	24,3	37,5	51,1	5,0	23 . 11 . 18,6		B.
	l Aurigæ............	38,1	53,6	9,1	24,6	40,2	55,9	5 . 28 . 11,5		B.
	Castor................	38,7	54,6	10,8	26,2	42,1	58,2	7 . 24 . 14,0		B.
	Procyon..............	19,2	32,9	46,2	59,8	13,3	27,0	7 . 30 . 40,3		B.
	κ Geminorum.........	6,1	20,9	36,0	50,5	5,6	20,2	7 . 34 . 35,1		B.
	A.S.C. 997...........	56,0	9,8	23,3	37,0	50,8	4,6	8 . 2 . 18,1		B.
	γ Cancri.............	21,8	36,2	50,8	5,2	20,0	34,2	8 . 33 . 48,9		B.
	☽ 1 L......... (cloudy)	27,7	42,3	57,1	11,9	... ...	... ...	8 . 51	+ 22,22	B.
	q Cancri...... (cloudy)	24,6	38,8	53,0	7,0	21,1	... ...	9 . 9	+ 14,20	B.
	α Hydræ............	7,9	21,3	35,1	48,3	2,0	16,0	9 . 19 . 29,3		B.
	λ Leonis..............	55,5	10,1	24,4	39,1	53,9	8,8	9 . 22 . 23,4		B.
	Regulus....... (Temp. 41°)	14,1	28,1	41,8	55,2	9,2	23,1	9 . 59 . 37,1		B.
	k Sextantis...........	45,9	59,1	12,5	26,0	39,3	52,9	10 . 21 . 6,4		B.
	34 Sextantis..........	46,2	59,8	13,3	26,5	40,1	53,4	10 . 34 . 7,1		B.
	Jupiter 1 L...........	41,9	... ...	9,2	... ...	36,4	... ...	11 . 1 . 3,8	− 0,02	B.
	Jupiter 2 L...........	... ...	58,9	... ...	26,0	... ...	53,3	11 . 0	+ 0,02	B.
	Venus 2 L..... (unsteady)	0,7	14,1	27,7	41,2	54,4	8,1	22 . 41 . 21,4		B.
Mar. 8	(*c*) ⊙ 1 L..............	28,1	41,4	55,0	8,4	22,0	35,5	23 . 12 . 49,0		B.
	⊙ 2 L..............	... ...	... ...	5,1	18,4	31,9	... ...	23 . 14	+ 0,09	B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.

(*a*) Cloudy and very faint.

(*b*) Double star: the one observed is the brighter of the two.

(*c*) Cloudy and wind very loud.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	
8 . 23 . 5,34		+2,38	5,40			0,97	46,18	8 . 23 . 51,92	*h* Cancri.
9 . 19 . 21,11			20,98					9 . 20 . 7,54	*d* Ursæ Majoris.
9 . 58 . 59,40			59,44	46,00	46,56			9 . 59 . 46,02	Regulus.
11 . 2 . 22,55			} 24,09					11 . 3 . 10,72	Jupiter's center.
11 . 2 . 25,49									
23 . 4 . 46,90			} 52,11			0,94	48,14	23 . 6 . 41,16	☉'s center.
23 . 6 . 57,03									
4 . 16 . 17,99			18,02				49,08	4 . 17 . 7,27	71 Tauri.
4 . 25 . 48,72			48,75	38,05	49,30			4 . 26 . 38,00	Aldebaran.
5 . 4 . 50,18			50,36					5 . 5 . 39,64	μ Leporis.
5 . 27 . 25,46			25,42					5 . 28 . 14,71	*l* Aurigæ.
5 . 32 . 57,72			57,76					5 . 33 . 47,06	A.S.C. 701.
5 . 42 . 20,25			20,22					5 . 43 . 9,52	*C* Tauri.
6 . 7 . 22,11			22,17					6 . 8 . 11,49	*l* Orionis.
6 . 23 . 31,51	32,38		34,14	23,05	48,91			18 . 24 . 23,47	δ Ursæ Min. SP.
7 . 23 . 27,32			27,27	16,65	49,38			7 . 24 . 16,64	Castor.
7 . 30 . 0,68			0,76	50,17	49,41			7 . 30 . 50,13	Procyon.
7 . 33 . 51,57			51,56					7 . 34 . 40,94	κ Geminorum.
7 . 49 . 5,23			5,46					7 . 49 . 54,85	11 Argus.
7 . 59 . 1,70			1,69					7 . 59 . 51,08	☽ 1 L.
8 . 16 . 11,07			11,05					8 . 17 . 0,45	ϕ^2 Cancri.
8 . 23 . 2,53			2,59					8 . 23 . 52,00	*h* Cancri.
8 . 33 . 6,22			6,23					8 . 33 . 55,65	γ Cancri.
9 . 58 . 56,59			56,63	46,00	49,37			9 . 59 . 46,10	Regulus.
10 . 20 . 26,99			27,11					10 . 21 . 16,59	*k* Sextantis.
10 . 33 . 27,57			27,66					10 . 34 . 17,15	34 Sextantis.
11 . 0 . 52,83			} 54,45					11 . 1 . 43,96	Jupiter's center.
11 . 0 . 55,92									
18 . 23 . 34,70	33,57		32,07	23,21	51,14	0,98	49,03	18 . 24 . 21,85	δ Ursæ Minoris.
19 . 42 . 2,20			2,26	52,26	50,00			19 . 42 . 52,10	α Aquilæ.
19 . 46 . 30,88			30,95	20,80	49,85			19 . 47 . 20,79	β Aquilæ.
22 . 2 . 18,55			18,72					22 . 3 . 8,65	Mercury 2 L.
22 . 42 . 51,83			51,93					22 . 43 . 41,89	Venus 2 L.
23 . 10 . 37,83			37,97					23 . 11 . 27,94	☉ 2 L.
5 . 27 . 24,71			24,67				50,01	5 . 28 . 14,90	*l* Aurigæ.
7 . 23 . 26,37			26,32	16,64	50,32			7 . 24 . 16,63	Castor.
7 . 29 . 59,82			59,90	50,16	50,26			7 . 30 . 50,22	Procyon.
7 . 33 . 50,63			50,62					7 . 34 . 40,94	κ Geminorum.
8 . 1 . 37,09			37,15					8 . 2 . 27,49	A.S.C. 997.
8 . 33 . 5,30			5,31					8 . 33 . 55,67	γ Cancri.
8 . 51 . 11,97			11,98					8 . 52 . 2,35	☽ 1 L.
9 . 9 . 7,10			7,13					9 . 9 . 57,31	*q* Cancri.
9 . 18 . 48,56			48,70	38,98	50,28			9 . 19 . 39,09	α Hydræ.
9 . 21 . 39,32			39,31					9 . 22 . 29,70	λ Leonis.
9 . 58 . 55,51			55,55	46,00	50,45			9 . 59 . 45,97	Regulus.
10 . 20 . 26,01			26,12					10 . 21 . 16,55	*k* Sextantis.
10 . 33 . 26,63			26,72					10 . 34 . 17,16	34 Sextantis.
11 . 0 . 22,80			} 24,52					11 . 1 . 14,98	Jupiter's center.
11 . 0 . 26,09									
22 . 40 . 41,08		+2,32	41,18			0,99	50,04	22 . 41 . 32,16	Venus 2 L.
23 . 12 . 8,49			} 13,66					23 . 14 . 4,66	☉'s center.
23 . 14 . 18,56									

Error of Collimation = + 1",62.
Level error = − 3",18.
Meridian Error from Venus March 7, by bisection of Grantchester cross March 9, with correction − 1",22.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Mar. 8	α Ceti................	16,9	30,7	44,2	57,1	10,8	24,1	2 . 53 . 37,9		B.
	Aldebaran	4,8	18,8	32,7	46,4	0,9	14,9	4 . 26 . 28,7		B.
	Rigel	13,5	27,1	40,7	54,1	7,7	21,4	5 . 6 . 35,1		B.
	o Orionis	58,4	12,0	25,2	38,7	52,1	5,8	5 . 13 . 19,1		B.
	α Orionis	53,1	6,3	20,0	33,3	46,9	0,4	5 . 46 . 14,2		B.
	δ Ursæ Minoris SP....	12.12,4	15.57,3	19.45,4	23.32,7	27.15,6	31. 0,8	6 . 34 . 44,5		B.
	Castor................	37,8	53,7	9,4	25,1	41,1	56,9	7 . 24 . 13,1		B.
	Procyon...............	18,3	31,5	45,1	58,5	2,2	26,1	7 . 30 . 39,3		B.
	Pollux................	47,9	3,2	18,4	33,5	48,9	4,4	7 . 35 . 19,8		B.
	α Hydræ	7,2	20,5	34,2	47,5	1,1	14,8	9 . 19 . 28,2		B.
	λ Leonis.............	54,4	9,0	23,8	38,1	52,7	7,6	9 . 22 . 22,4		B.
	☽ 1 L.......... (cloudy)	27,0	41,1	55,7	9,8	24,4	39,0	9 . 40 . 53,3		B.
	Regulus...... (blazing)	13,1	27,1	40,6	54,3	8,2	22,1	9 . 59 . 35,7		B.
	γ Leonis.............	29,2	43,6	57,9	12,2	26,6	41,0	10 . 10 . 55,4		B.
	n Sextantis...........	18,1	31,6	45,1	58,2	12,1	25,4	10 . 36 . 39,0		B.
	Jupiter 1 L...........	12,0	......	39,3	......	6,5	......	11 . 0 . 33,8	– 0,02	B.
	Jupiter 2 L...........	......	29,1	......	56,0	......	23,4	11 . 0	+ 0,02	B.
	δ Ursæ Minoris (unsteady)	12.17,5	16. 2,3	19.45,8	23.29,3	27.19,2	31. 5,7	18 . 34 . 50,4		B.
Mar. 9	⊙ 1 L. (cloudy and unsteady)	8,1	21,6	35,1	48,7	2,2	15,7	23 . 16 . 29,2		B.
	⊙ 2 L.	18,1	31,4	44,1	58,2	12,3	......	23 . 18	+ 13,55	B.
	α Arietis.............	26,7	41,5	55,9	10,4	25,0	39,8	1 . 57 . 54,4		B.
	Aldebaran.............	3,9	17,8	31,8	45,7	59,7	14,0	4 . 26 . 27,9		B.
	Rigel	12,6	26,0	39,6	53,0	6,7	20,5	5 . 6 . 34,1		B.
	β Tauri...............	25,8	41,2	56,3	11,3	26,9	42,4	5 . 15 . 57,5		B.
	α Orionis............	51,9	5,4	18,7	32,1	45,9	59,7	5 . 46 . 13,0		B.
	(*a*) δ Ursæ Minoris SP....	12.14,6	16. 0,8	19.46,5	23.33,8	27.17,4	31. 2,2	6 . 34 . 48,0		B.
	Regulus..............	12,4	26,1	39,6	53,3	7,2	21,2	9 . 59 . 35,0		B.
	γ Leonis.............	28,2	42,4	57,0	11,1	25,5	40,1	10 . 10 . 54,4		B.
	☽ 1 L................	41,7	55,8	9,7	23,4	37,6	52,0	10 . 27 . 6,0		B.
	l Leonis....... (cloudy)	......	26,1	39,8	53,3	7,2	21,2	10 . 40 . 34,8	– 6,85	B.
	χ Leonis.............	8,0	21,3	35,0	48,5	2,1	15,9	10 . 56 . 29,6		B.
	Jupiter 1 L...........	42,5	......	9,7	......	36,6	......	10 . 59	+ 13,58	B.
	Jupiter 2 L...........	......	59,2	......	26,0	......	53,6	10 . 59	+ 0,02	B.
Mar. 10	Castor................	35,6	51,4	7,1	22,9	38,6	54,9	7 . 24 . 10,5		B.
	Procyon...............	16,1	29,4	42,9	56,2	10,0	23,4	7 . 30 . 37,1		B.
	Pollux................	45,5	1,0	16,1	31,1	46,5	2,1	7 . 35 . 17,4		B.
	α Hydræ	3,8	18,3	32,0	45,2	58,7	12,4	9 . 19 . 26,1		B.
	Regulus..............	11,1	25,0	38,4	52,1	6,0	19,8	9 . 59 . 33,8		B.
	n Sextantis...........	16,1	29,4	42,9	56,2	9,8	23,3	10 . 36 . 36,8		B.
	l Leonis.............	11,1	24,7	38,2	52,1	5,9	19,7	10 . 40 . 33,3		B.
	χ Leonis.............	6,8	20,2	33,8	47,1	0,9	14,5	10 . 56 . 28,1		B.
	Jupiter 1 L...........	12,4	......	39,5	......	7,0	......	10 . 59 . 34,0	– 0,02	B.
	Jupiter 2 L...........	......	29,3	......	55,8	......	23,4	10 . 59	+ 0,02	B.
	☽ 1 L................	56,6	10,4	24,0	37,9	51,7	5,7	11 . 11 . 19,4		B.
	(*b*) ☽ 2 L.......... (rough)	59,3	13,0	26,8	40,6	54,6	8,5	11 . 13 . 22,4		B.
	ν Virginis............	59,3	12,8	26,1	39,5	53,2	7,1	11 . 37 . 20,5		B.
	β Virginis............	43,1	56,2	9,7	23,1	36,6	50,3	11 . 42 . 3,7		B.
Mar. 11	ν Virginis............	58,1	11,6	25,0	38,4	52,1	6,0	11 . 37 . 19,3		B.
	☽ 2 L........... (hazy)	8,9	22,4	36,1	49,7	3,9	17,9	11 . 56 . 31,1		B.
	η Virginis............	3,9	16,8	30,1	43,7	57,3	10,7	12 . 11 . 24,1		B.
	γ^1 Virginis............	53,3	6,9	20,3	33,7	47,1	0,8	12 . 33 . 14,1		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.
March 13, 4^h. Transit levelled three times with the telescope in different positions.

(*a*) Unsteady.

(*b*) Correction applied to apparent Æ for defect of illumination = + 0^s,06.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
2 . 52 . 57,39		+ 2,32	57,48	48,76	51,28	0,99	51,03	2 . 53 . 48,63	*α* Ceti.
4 . 25 . 46,74			46,76	38,01	51,25			4 . 26 . 37,97	Aldebaran.
5 . 5 . 54,23			54,38	45,69	51,31			5 . 6 . 45,62	Rigel.
5 . 12 . 38,76			38,87					5 . 13 . 30,11	*o* Orionis.
5 . 45 . 33,46			33,53	24,77	51,24			5 . 46 . 24,80	*α* Orionis.
6 . 23 . 29,81	30,68		32,39	23,70	51,31			18 . 24 . 23,68	δ Ursæ Min. SP.
7 . 23 . 25,30			25,25	16,63	51,38			7 . 24 . 16,58	Castor.
7 . 29 . 58,72			58,79	50,15	51,36			7 . 30 . 50,13	Procyon.
7 . 34 . 33,73			33,70	24,95	51,25			7 . 35 . 25,04	Pollux.
9 . 18 . 47,65			47,79	38,98	51,19			9 . 19 . 39,20	*α* Hydræ.
9 . 21 . 38,29			38,28					9 . 22 . 29,70	λ Leonis.
9 . 40 . 10,05			10,07					9 . 41 . 1,50	☽ 1 L.
9 . 58 . 54,44			54,48	46,00	51,52			9 . 59 . 45,92	Regulus.
10 . 10 . 12,27			12,29					10 . 11 . 3,74	*γ* Leonis.
10 . 35 . 58,50			58,59					10 . 36 . 50,06	*n* Sextantis.
10 . 59 . 52,88 10 . 59 . 56,19			} 54,61					11 . 0 . 46,09	Jupiter's center.
18 . 23 . 32,89	31,76		30,29	23,86	53,57	1,11	50,86	18 . 24 . 22,00	δ Ursæ Minoris.
23 . 15 . 48,66 23 . 17 . 58,37			} 53,65					23 . 17 . 45,59	☉'s center.
1 . 57 . 10,52			10,52	2,48	51,96		51,97	1 . 58 . 2,58	*α* Arietis.
4 . 25 . 45,83			45,85	38,00	52,15			4 . 26 . 38,02	Aldebaran.
5 . 5 . 53,21			53,36	45,67	52,31			5 . 6 . 45,57	Rigel.
5 . 15 . 11,63			11,60	3,76	52,16			5 . 16 . 3,81	*β* Tauri.
5 . 45 . 32,38			32,45	24,76	52,31			5 . 46 . 24,69	*α* Orionis.
6 . 23 . 31,90	32,77		34,48	24,04	49,56			18 . 24 . 26,75	δ Ursæ Min. SP.
9 . 58 . 53,54			53,58	46,00	52,42			9 . 59 . 46,01	Regulus.
10 . 10 . 11,24			11,26					10 . 11 . 3,70	*γ* Leonis.
10 . 26 . 23,74			23,78					10 . 27 . 16,23	☽ 1 L.
10 . 39 . 53,55			53,60					10 . 40 . 46,06	*l* Leonis.
10 . 55 . 48,63			48,70					10 . 56 . 41,18	*χ* Leonis.
10 . 59 . 23,18 10 . 59 . 26,29			} 24,81					11 . 0 . 17,29	Jupiter's center.
7 . 23 . 23,00			22,95	16,60	53,65	1,21	53,20	7 . 24 . 16,52	Castor.
7 . 29 . 56,44			56,51	50,12	53,61			7 . 30 . 50,09	Procyon.
7 . 34 . 31,38			31,34	24,93	53,59			7 . 35 . 24,92	Pollux.
9 . 18 . 45,21			45,35	38,97	53,62			9 . 19 . 39,02	*α* Hydræ.
9 . 58 . 52,31			52,35	46,00	53,65			9 . 59 . 46,05	Regulus.
10 . 35 . 56,36			56,44					10 . 36 . 50,17	*n* Sextantis.
10 . 39 . 52,14			52,18					10 . 40 . 45,92	*l* Leonis.
10 . 55 . 47,35			47,41					10 . 56 . 41,16	*χ* Leonis.
10 . 58 . 53,20 10 . 58 . 56,19			} 54,76					10 . 59 . 48,51	Jupiter's center.
11 . 10 . 37,96			38,02					11 . 11 . 31,78	☽ 1 L.
11 . 12 . 40,74			40,80					11 . 13 . 34,62	☽ 2 L.
11 . 36 . 39,79			39,85					11 . 37 . 33,64	*ν* Virginis.
11 . 41 . 23,24			23,32					11 . 42 . 17,11	*β* Virginis.
11 . 36 . 38,65		+ 2,01	38,70			1,10	54,40	11 . 37 . 33,63	*ν* Virginis.
11 . 55 . 50,00			50,07					11 . 56 . 45,02	☽ 2 L.
12 . 10 . 43,80			43,88					12 . 11 . 38,84	*η* Virginis.
12 . 32 . 33,74			33,83					12 . 33 . 28,81	γ^1 Virginis.

Error of Collimation = + 1″,62.
Level Error = − 3″,18. From March 10 = − 3″,30.
Meridian Error from March 11 by bisection of Grantchester cross March 13, with correction − 1″,22.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Mar. 12	⊙ 1 L. } (hazy)	6,8	19,9	33,4	46,8	0,5	14,1	23 . 27 . 27,6		B.
	⊙ 2 L. }	15,9	29,5	43,0	56,4	10,1	23,9	23 . 29 . 37,2		B.
	Aldebaran	0,3	14,1	28,1	41,8	56,1	10,2	4 . 26 . 24,0		B.
	β Tauri	22,1	37,5	52,9	8,2	23,3	38,6	5 . 15 . 54,1		B.
	α Orionis	48,4	1,9	15,4	28,9	42,2	56,1	5 . 46 . 9,7		B.
	δ Ursæ Minoris SP	12.10,2	15.55,7	19.43,4	23.29,7	27.13,8	30.58,6	6 . 34 . 43,5		B.
	Procyon	13,9	27,1	40,7	54,0	7,6	21,1	7 . 30 . 34,5		B.
	Pollux	43,3	58,6	14,0	28,9	44,3	0,1	7 . 35 . 15,2		B.
	α Hydræ	2,2	15,8	29,1	42,9	56,4	10,1	9 . 19 . 23,9		B.
	h Leonis	40,8	54,8	8,1	21,9	35,4	49,0	9 . 23 . 3,1		B.
	Regulus (Temp. 38°)	8,9	22,3	36,1	49,9	3,9	17,7	9 . 59 . 31,3		B.
	n Sextantis	13,8	27,1	40,5	54,2	7,8	21,1	10 . 36 . 34,3		B.
	Jupiter 1 L.	13,0	......	40,1	......	7,2	......	10 . 58 . 34,4	– 0,02	B.
	Jupiter 2 L.	......	29,9	......	56,7	......	24,1	10 . 58	+ 0,02	B.
	β Leonis	11,6	25,3	39,4	53,1	7,2	21,3	11 . 40 . 35,0		B.
	η Virginis	2,4	15,9	29,1	42,4	56,0	9,7	12 . 11 . 23,1		B.
	γ^1 Virginis	52,4	6,1	19,2	32,4	46,2	59,7	12 . 33 . 13,1		B.
	☽ 2 L. (very hazy)	14,9	29,1	42,2	55,9	10,0	24,0	12 . 39 . 37,4		B.
	θ Virginis	58,8	12,3	26,0	39,2	52,7	6,7	13 . 1 . 20,0		B.
	Spica (cloudy)	4,6	18,0	31,4	45,1	58,8	......	13 . 15	+ 13,70	B.
Mar. 13	☽ 2 L. (hazy and faint)	20,0	33,9	47,8	1,3	15,3	29,2	13 . 23 . 43,2		B.
Mar. 14	Aldebaran	57,9	11,9	25,7	39,7	54,0	8,1	4 . 26 . 22,2		B.
	Castor	30,7	46,7	2,6	18,6	34,4	50,5	7 . 24 . 6,4		B.
	Pollux	41,3	56,6	12,0	26,6	42,1	57,7	7 . 35 . 12,8		B.
Mar. 15	Regulus	5,6	19,1	32,9	46,7	0,9	14,4	9 . 59 . 28,1		B.
	n Sextantis	10,7	24,1	37,4	50,7	4,4	18,1	10 . 36 . 31,4		B.
	Jupiter 1 L.	45,4	......	12,4	......	39,8	......	10 . 57 . 7,0	– 0,02	B.
	Jupiter 2 L.	......	2,3	......	29,2	......	36,5	10 . 56	+ 0,02	B.
	(*a*) 17 Hydræ et Crat.	31,7	46,9	2,2	17,2	32,7	48,1	11 . 24 . 3,4		B.
	β Leonis	8,6	22,4	36,3	50,2	4,2	18,4	11 . 40 . 32,1		B.
	A.S.C. 1388	6,3	19,7	33,1	46,4	0,1	13,7	11 . 52 . 27,0		B.
	Polaris SP (much motion)	34.36,7	42.52,5	......	59.34,8	7.46,4	16. 2,2	13 . 24 . 19,6	– 1 . 22,47	B.
	(*b*) Venus 2 L.	11,0	24,2	37,8	51,0	4,4	18,3	22 . 27 . 31,7		B.
Mar. 16	Castor	28,8	44,8	0,8	16,4	32,6	48,6	7 . 24 . 4,7		B.
	Procyon	9,7	23,1	36,4	50,0	3,6	17,0	7 . 30 . 30,4		B.
	Pollux	39,2	54,3	9,7	24,9	40,2	56,0	7 . 35 . 11,2		B.
	α Hydræ	58,1	11,6	25,1	38,5	52,2	6,1	9 . 19 . 19,6		B.
	h Leonis	36,7	50,3	3,9	17,4	31,1	45,0	9 . 22 . 58,8		B.
	Regulus	4,6	18,5	32,0	45,6	59,8	13,6	9 . 59 . 27,3		B.
	Jupiter 1 L.	16,9	......	43,9	......	11,0	......	10 . 56 . 38,0	– 0,02	B.
	Jupiter 2 L.	......	33,4	......	0,5	......	27,6	10 . 56	+ 0,02	B.
	(*c*) Venus 2 L.	......	15,8	29,3	42,7	......	......	22 . 25	+ 13,50	B.
Mar. 17	β Tauri	16,8	32,2	47,4	2,7	18,0	33,2	5 . 15 . 48,5		B.
	Castor	27,8	43,7	59,7	15,3	31,4	47,4	7 . 24 . 3,4		B.
	Procyon	8,3	21,9	35,2	49,0	2,2	15,9	7 . 30 . 29,3		B.
	Pollux	38,1	53,2	8,4	23,4	39,0	54,3	7 . 35 . 9,7		B.
	α Hydræ	56,9	10,5	24,1	37,4	51,1	4,9	9 . 19 . 18,5		B.
	h Leonis	35,0	49,3	2,8	16,4	30,1	43,7	9 . 22 . 57,7		B.
	Regulus	3,6	17,2	31,1	44,5	58,3	12,2	9 . 59 . 26,2		B.
	n Sextantis	8,7	22,0	35,2	48,8	2,3	16,1	10 . 36 . 28,9		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.
March 15, 6h. Transit levelled three times with the Telescope in different positions.
March 17, 4h. Transit twice levelled with Telescope in different positions.

(*a*) Double star: the following one observed.
(*b*) Faint and cloudy: wind too loud for clock.
(*c*) Very cloudy and unsteady.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0ʰ.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
23 . 26 . 47,02		+ 2,01	51,89			1,10	54,40	23 . 28 . 47,37	☉'s center.
23 . 28 . 56,57									
4 . 25 . 42,08			42,09	37,95	55,86		55,50	4 . 26 . 37,79	*β* Tauri.
5 . 15 . 8,10			8,05	3,70	55,65			5 . 16 . 3,79	*β* Tauri.
5 . 45 . 28,95	28,90		29,00	24,71	55,71			5 . 46 . 24,77	*α* Orionis.
6 . 23 . 27,84	28,81		30,29	25,15	54,86			18 . 24 . 26,08	*δ* Ursæ Min. SP.
7 . 29 . 54,13	54,09		54,19	50,10	55,91			7 . 30 . 50,03	Procyon.
7 . 34 . 29,20			29,15	24,90	55,75			7 . 35 . 25,00	Pollux.
9 . 18 . 42,91			43,03	38,96	55,93			9 . 19 . 38,96	*α* Hydræ.
9 . 22 . 21,87			21,90					9 . 23 . 17,83	*h* Leonis.
9 . 58 . 50,02			50,04	46,00	55,96			9 . 59 . 46,00	Regulus.
10 . 35 . 54,11			54,17					10 . 36 . 50,15	*n* Sextantis.
10 . 57 . 53,65			55,33					10 . 58 . 51,33	Jupiter's center.
10 . 57 . 56,92									
11 . 39 . 53,27			53,28	49,35	56,07			11 . 40 . 49,31	*β* Leonis.
12 . 10 . 42,65			42,73					12 . 11 . 38,79	*η* Virginis.
12 . 32 . 32,73			32,82					12 . 33 . 28,90	γ^1 Virginis.
12 . 38 . 56,22			56,32					12 . 39 . 52,40	☽ 2 L.
13 . 0 . 39,39			39,49					13 . 1 . 35,59	*θ* Virginis.
13 . 15 . 45,28			45,40	41,46	56,06			13 . 16 . 41,51	Spica.
13 . 23 . 1,53			1,66			1,00	56,68	13 . 23 . 58,90	☽ 2 L.
4 . 25 . 39,93			39,94	37,92	57,98		57,68	4 . 26 . 37,80	Aldebaran.
7 . 23 . 18,56			18,50	16,54	58,04			7 . 24 . 16,49	Castor.
7 . 34 . 27,02			26,97	24,87	57,82			7 . 35 : 24,97	Pollux.
9 . 58 . 46,82		+ 2,13	46,85	45,99	59,14	0,97	58,65	9 . 59 . 45,90	Regulus.
10 . 35 . 50,97			51,05					10 . 36 . 50,13	*n* Sextantis.
10 . 56 . 26,13			27,84					10 . 57 . 26,93	Jupiter's center.
10 . 56 . 29,35									
11 . 23 . 17,46			17,70					11 . 24 . 16,81	17 Hydræ et Crat.
11 . 39 . 50,31	50,24		50,33	49,37	59,04			11 . 40 . 49,45	*β* Leonis.
11 . 51 . 46,62			46,72					11 . 52 . 45,85	A.S.C. 1388.
12 . 59 . 29,56	31,74		35,06	34,86	59,80			1 . 0 . 34,23	Polaris SP.
22 . 26 . 51,20			51,30			1,08	58,51	22 . 27 . 50,82	Venus 2 L.
7 . 23 . 16,67			16,59	16,50	59,91		59,59	7 . 24 . 16,51	Castor.
7 . 29 . 50,02			50,06	50,04	59,98			7 . 30 . 49,99	Procyon.
7 . 34 . 25,07			25,00	24,84	59,84			7 . 35 . 24,93	Pollux.
9 . 18 . 38,75			38,87	38,93	60,06			9 . 19 . 38.88	*α* Hydræ.
9 . 22 . 17,60			17,63					9 . 23 . 17,64	*h* Leonis.
9 . 58 . 45,91			45,92	45,98	60,06			9 . 59 . 45,96	Regulus.
10 . 55 . 57,43			59,02					10 . 57 . 59,10	Jupiter's center.
10 . 56 . 0,52									
22 . 25 . 42,77			42,86			1,19	59,55	22 . 26 . 43,52	Venus 2 L.
5 . 15 . 2,68			2,62	3,61	60,99		60,74	5 . 16 . 3,62	*β* Tauri.
7 . 23 . 15,53			15,45	16,48	61,03			7 . 24 . 16,56	Castor.
7 . 29 . 48,83			48,87	50,03	61,16			7 . 30 . 49,98	Procyon.
7 . 34 . 23,73			23,66	24,82	61,16			7 . 35 . 24,78	Pollux.
9 . 18 . 37,63			37,75	38,92	61,17			9 . 19 . 38,95	*α* Hydræ.
9 . 22 . 16,43			16,46					9 . 23 . 17,66	*h* Leonis.
9 . 58 . 44,73			44,74	45,98	61,24			9 . 59 . 45,98	Regulus.
10 . 35 . 48,86			48,92					10 . 36 . 50,19	*n* Sextantis.

Error of Collimation = + 1″,62.

Level Error = − 3″,30. From March 14 = − 3″,24. From March 16 = − 3″,61.

Meridian Error from March 15 by bisection of Grantchester cross March 17, with correction − 1″,22.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Mar. 17	Jupiter 1 L.	47,9	......	15,0	......	42,1	......	10.56. 9,4	− 0,02	B.
	Jupiter 2 L.	......	4,7	......	31,6	......	59,0	10.55.....	+ 0,02	B.
	(*a*) 17 Hydræ et Crat.	29,4	45,0	0,1	15,0	30,6	45,7	11.24. 1,3		B.
Mar. 19	Rigel	1,4	14,8	28,2	41,8	55,4	9,0	5. 6.22,7		B.
	β Tauri	14,4	29,9	45,0	0,1	15,5	30,8	5.15.46,2		B.
	(*b*) Venus 2 L.	32,7	46,1	59,7	13,0	26,3	40,0	22.23.53,4		B.
Mar. 20	(*c*) ⊙ 1 L. (cloudy)	11,1	24,4	37,9	51,3	4,9	18,7	23.56.32,1		B.
	⊙ 2 L.	20,4	33,7	47,4	0,7	14,2	27,7	23.58.41,1		B.
	Aldebaran	51,4	5,4	19,3	33,2	47,2	1,5	4.26.15,5		B.
	Rigel	0,0	13,7	27,2	40,8	54,3	8,1	5. 6.21,6		B.
	β Tauri	13,2	28,5	43,7	58,9	14,3	29,7	5.15.45,1		B.
	α Orionis	39,4	52,9	6,5	19,9	33,4	47,2	5.46. 0,8		B.
	Procyon	5,1	18,3	32,0	45,2	59,1	12,6	7.31.26,1		B.
	Pollux	34,4	49,2	5,1	20,2	35,4	51,1	7.36. 6,3		B.
	α Hydræ	53,4	7,2	20,8	34,1	48,0	1,6	9.20.15,0		B.
	h Leonis	32,1	45,8	59,3	12,9	26,6	40,5	9.23.54,1		B.
	Regulus	0,1	14,1	27,3	41,1	55,1	9,0	10. 0.22,6		B.
	Jupiter 1 L.	23,3	......	50,2	......	17,5	......	10.56.45,0	− 0,02	B.
	Jupiter 2 L.	......	40,1	......	7,0	......	34,5	10.56.....	+ 0,02	B.
	17 Hydræ et Crat.	26,1	41,1	56,5	11,6	27,2	42,7	11.24.58,0		B.
	☽ 2 L. (cloudy)	12,9	28,3	43,9	59,2	15,1	30,7	20. 1.46,2		B.
	(*d*) Venus 2 L.	1,7	15,2	28,6	41,9	55,0	8,9	22.24.22,5		B.
Mar. 21	α Hydræ	52,3	6,2	19,3	32,7	46,7	0,3	9.20.13,8		B.
	Regulus	59,2	12,7	26,2	40,1	53,8	7,8	10. 0.21,4		B.
	Jupiter 1 L.	55,7	......	22,9	......	50,1	......	10.55.17,0	− 0,02	B.
	Jupiter 2 L.	......	12,6	......	39,5	......	6,8	10.55.....	+ 0,02	B.
	A.S.C. 1355	48,7	2,1	15,7	28,9	42,9	56,4	11.25. 9,9		B.
	β Leonis	1,7	15,5	29,2	43,1	57,2	11,4	11.41.25,4		B.
	A.S.C. 1388	59,8	13,1	26,5	39,5	53,2	7,0	11.53.20,2		B.
Mar. 26	Regulus	52,3	6,2	19,6	33,4	47,2	1,3	10. 0.14,8		B.
	i Sextantis	29,6	43,0	56,3	9,8	23,2	36,7	10.18.50,0		B.
	(*e*) Jupiter 1 L.	41,8	......	9,0	......	36,2	......	10.53. 3,7	− 0,02	B.
	Jupiter 2 L.	......	58,7	......	25,5	......	53,1	10.52.....	+ 0,02	B.
	β Leonis	55,2	9,1	22,7	36,7	50,8	5,0	11.41.18,7		B.
	(*f*) Venus 2 L.	9,6	23,0	36,3	49,6	3,4	16,8	22.24.30,4		B.
Mar. 27	⊙ 1 L. (hazy)	28,7	42,1	55,6	9,1	22,9	36,2	0.23.49,8		B.
	⊙ 2 L.	37,7	51,5	5,0	18,4	32,1	45,4	0.25.59,1		B.
	α Arietis..... (great motion)	5,2	20,0	34,5	49,0	3,9	18,4	1.58.33,0		B.
	Aldebaran	42,2	55,9	10,1	23,9	38,1	52,0	4.27. 6,1		B.
	Rigel	50,9	4,7	18,1	31,4	45,2	58,7	5. 7.12,6		B.
	β Tauri	4,1	19,3	34,6	49,6	5,1	20,9	5.16.36,1		B.
	α Orionis	30,1	43,6	57,1	10,5	24,3	38,0	5.46.51,5		B.
	Castor	15,1	30,9	46,6	2,4	18,4	34,6	7.24.50,5		B.
	Procyon	55,8	9,1	22,7	36,2	49,8	3,2	7.31.16,7		B.
	Pollux	25,1	40,4	55,5	10,8	26,2	41,7	7.35.56,8		B.
	α Hydræ	44,2	57,9	11,2	24,6	38,3	52,1	9.20. 5,6		B.
	Regulus .... (Temp. 47°)	50,7	4,6	18,2	31,9	45,7	59,6	10. 0.13,4		B.
	i Sextantis	27,8	41,1	54,7	8,1	21,4	35,1	10.18.48,5		B.
	Jupiter 1 L.	16,1	......	43,2	......	10,7	......	10.52.38,0	− 0,02	B.
	Jupiter 2 L.	......	33,0	......	59,9	......	27,4	10.52.....	+ 0,02	B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.
After α Orionis March 20 the clock was put forward 1^{m}.
Transit levelled March 21, 6^{h}, and March 27, 6^{h}.

(*a*) Double star: the following one observed.
(*b*) Cloudy and wind loud.
(*c*) Clock inaudible, the wind so loud. Most of the wires guessed at.
(*d*) Doubtful observation, confused by the wind.
(*e*) Cloudy, faint, and ill-defined.
(*f*) Very unsteady.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	
10 . 55 . 28,58		+ 2,13	30,23			1,19	60,74	10 . 56 . 31,51	Jupiter's center.
10 . 55 . 31,79									
11 . 23 . 15,30			15,53					11 . 24 . 16,84	17 Hydræ et Crat.
5 . 5 . 41,90		+ 2,42	42,04	45,50	63,46	1,09	63,15	5 . 6 . 45,42	Rigel.
5 . 15 . 0,27			0,25	3,57	63,32			5 . 16 . 3,64	β Tauri.
22 . 23 . 13,03			13,15			1,10	63,08	22 . 24 . 17,26	Venus 2 L.
23 . 55 . 51,48			56,22					23 . 58 . 0,39	⊙'s center.
23 . 58 . 0,74									
4 . 25 . 33,36			33,39	37,83	64,44		64,18	4 . 26 . 37,77	Aldebaran.
5 . 5 . 40,81			40,95	45,48	64,53			5 . 6 . 45,36	Rigel.
5 . 14 . 59,06			59,03	3,56	64,53			5 . 16 . 3,45	β Tauri.
5 . 45 . 20,02			20,10	24,58	64,48			5 . 46 . 24,55	α Orionis.
7 . 30 . 45,49			45,57	49,99	4,42			7 . 30 . 50,09	Procyon.
7 . 35 . 20,24			20,21	24,77	4,56			7 . 35 . 24,74	Pollux.
9 . 19 . 34,30			34,44	38,90	4,46			9 . 19 . 39,05	α Hydræ.
9 . 23 . 13,04			13,10					9 . 23 . 17,71	*h* Leonis.
9 . 59 . 41,33			41,38	45,97	4,59			9 . 59 . 46,02	Regulus.
10 . 56 . 3,98			5,67					10 . 56 . 10,35	Jupiter's center.
10 . 56 . 7,22									
11 . 24 . 11,88			12,14					11 . 24 . 16,84	17 Hydræ et Crat.
20 . 0 . 59,48			59,74			1,15	4,16	20 . 1 . 4,86	☽ 2 L.
22 . 23 . 41,97			42,09					22 . 23 . 47,32	Venus 2 L.
9 . 19 . 33,04			33,18	38,89	5,71		5,31	9 . 19 . 38,94	α Hydræ.
9 . 59 . 40,17			40,22	45,96	5,74			9 . 59 . 46,01	Regulus.
10 . 54 . 36,40			38,09					10 . 54 . 43,92	Jupiter's center.
10 . 54 . 39,65									
11 . 24 . 29,23			29,37					11 . 24 . 35,23	A.S.C. 1355.
11 . 40 . 43,36			43,39	49,40	6,01			11 . 40 . 49,26	β Leonis.
11 . 52 . 39,90			40,01					11 . 52 . 45,89	A.S.C. 1388.
9 . 59 . 33,54		+ 1,29	33,54	45,93	12,39	1,40	11,84	9 . 59 . 45,96	Regulus.
10 . 18 . 9,80			9,85					10 . 18 . 22,29	*i* Sextantis.
10 . 52 . 22,65			24,23					10 . 52 . 36,70	Jupiter's center.
10 . 52 . 25,79									
11 . 40 . 36,89			36,87	49,41	12,54			11 . 40 . 49,39	β Leonis.
22 . 23 . 49,88			49,94			1,38	11,93	22 . 24 . 3,15	Venus 2 L.
0 . 23 . 9,20			13,87				13,31	0 . 24 . 27,20	⊙'s center.
0 . 25 . 18,46									
1 . 57 . 49,15			49,12	2,37	13,25			1 . 58 . 2,54	α Arietis.
4 . 26 . 24,04			24,02	37,73	13,71			4 . 26 . 37,58	Aldebaran.
5 . 6 . 31,65			31,73	45,37	13,64			5 . 6 . 45,33	Rigel.
5 . 15 . 49,96			49,90	3,43	13,53			5 . 16 . 3,51	β Tauri.
5 . 46 . 10,73			10,74	24,47	13,73			5 . 46 . 24,38	α Orionis.
7 . 24 . 2,64			2,56	16,31	13,75			7 . 24 . 16,29	Castor.
7 . 30 . 36,21			36,23	49,88	13,65			7 . 30 . 49,97	Procyon.
7 . 35 . 10,93			10,86	24,65	13,79			7 . 35 . 24,61	Pollux.
9 . 19 . 24,84			24,92	38,82	13,90			9 . 19 . 38,76	α Hydræ.
9 . 59 . 32,01			32,01	45,92	13,91			9 . 59 . 45,89	Regulus.
10 . 18 . 8,10			8,15					10 . 18 . 22,05	*i* Sextantis.
10 . 51 . 56,98			58,56					10 . 52 . 12,49	Jupiter's center.
10 . 52 . 0,12									

Error of Collimation = + 1″,62.

Level Error = − 3″,61. From March 19 = − 3″,20. From March 26 = − 3″,24.

Meridian Error from March 19 by bisection of Grantchester cross March 21, with correction − 1″,22.

. . . . from March 26 by bisection of Grantchester cross March 30, with correction − 1″,22.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Mar. 27	A.S.C. 1355.........	40,6	54,1	8,2	21,2	34,8	48,3	11 . 25 . 1,9		B.
	β Leonis............	53,7	7,7	21,4	35,2	49,4	3,8	11 . 41 . 17,3		B.
	A.S.C. 1388..........	51,8	5,1	18,7	31,9	45,3	59,0	11 . 53 . 12,5		B.
	Polaris SP............	35.22,6	43.39,4	51.59,3	0.17,7	8.34,6	16.48,8	13 . 24 . 57,5		B.
Mar. 28	☉ 1 L................	5,7	19,3	32,6	45,9	59,5	13,2	0 . 26 . 26,7		B.
	☉ 2 L................	15,1	28,0	41,5	55,0	8,8	22,3	0 . 28 . 35,9		B.
	Polaris...............	35.41,7	43.58,5	52. 2,8	0.17,5	8.37,6	16.57,4	1 . 25 . 14,2		B.
	α Arietis.............	3,8	18,6	32,9	47,4	2,0	16,8	1 . 58 . 31,4		B.
	☽ 1 L..... (hazy and faint)	19,0	33,8	48,2	2,9	17,3	32,3	2 . 43 . 47,0		B.
	Aldebaran............	40,6	54,7	8,9	22,3	36,7	50,8	4 . 27 . 4,8		B.
	Rigel	49,5	3,2	16,8	30,2	43,7	57,7	5 . 7 . 11,1		B.
	β Tauri..............	2,8	17,8	33,0	48,4	3,8	19,3	5 . 16 . 34,1		B.
	α Orionis............	28,8	42,1	55,7	9,1	22,7	36,8	5 . 46 . 50,1		B.
	Castor...............	13,8	29,5	45,3	1,1	17,1	33,0	7 . 24 . 49,1		B.
	Procyon....... (blazing)	54,2	8,2	21,3	35,0	48,2	2,1	7 . 31 . 15,4		B.
	Pollux	23,7	39,1	54,2	9,6	24,9	40,3	7 . 35 . 55,4		B.
	α Hydræ............	43,1	56,4	10,1	23,4	37,2	50,8	9 . 20 . 4,7		B.
	Regulus..............	49,3	3,1	17,1	30,6	44,4	58,3	10 . 0 . 12,2		B.
	i Sextantis...........	26,4	39,8	53,1	6,8	20,2	33,9	10 . 18 . 47,2		B.
	Jupiter 1 L...........	50,9	......	18,2	......	45,3	......	10 . 52 . 12,8	- 0,02	B.
	Jupiter 2 L...........	......	7,7	......	34,6	......	2,2	10 . 52	+ 0,02	B.
	A.S.C. 1355..........	39,2	52,8	6,1	19,7	33,1	46,9	11 . 25 . 0,5		B.
	β Leonis............	52,1	6,1	20,2	34,2	48,0	2,0	11 . 41 . 15,9		B.
	A.S.C. 1388..........	50,1	3,7	17,1	30,4	44,1	57,4	11 . 53 . 11,1		B.
	3 Corvi...............	46,2	1,4	15,4	30,2	44,6	59,3	12 . 3 . 13,7		B.
	n Virginis............	28,1	41,6	55,1	7,9	21,8	35,1	12 . 10 . 49,0		B.
	κ Draconis............	24.21,2	25. 1,7	25.42,1	26.22,1	27. 3,5	27.44,2	12 . 28 . 25,0		B.
	Polaris SP............	35.16,2	43.37,6	51.58,3	0.19,7	8.29,5	16.45,9	13 . 25 . 2,4		B.
	Venus 2 L............	22,9	36,4	49,7	3,1	17,1	30,5	22 . 26 . 43,8		B.
Mar. 29	☉ 1 L................	42,3	56,0	9,4	22,7	36,3	49,8	0 . 30 . 3,5		B.
	☉ 2 L................	51,3	5,0	18,4	31,8	45,3	58,9	0 . 32 . 12,5		B.
	Polaris...... (very unsteady)	36.42,4	44.52,7	52.58,8	1.16,5	9.34,6	17.56,3	1 . 26 . 14,6		B.
Mar. 30	☉ 1 L................	19,1	32,7	46,1	59,4	13,2	26,7	0 . 34 . 40,3		B.
	☉ 2 L................	28,1	42,0	55,3	8,4	22,1	36,0	0 . 36 . 49,4		B.
	Polaris...............	......	43.46,7	......	0.11,3	8.33,6	16.53,2	1 . 25 . 12,5	- 6 . 37,27	B.
	Aldebaran............	38,0	51,9	6,0	19,8	33,8	48,1	4 . 27 . 2,0		B.
	☽ 1 L................	47,5	3,1	18,5	33,9	49,3	5,0	4 . 43 . 20,3		B.
	Rigel................	46,9	0,4	14,1	27,3	41,1	54,7	5 . 7 . 8,3		B.
	β Tauri..............	59,9	15,1	30,4	45,6	0,9	16,5	5 . 16 . 31,9		B.
	ζ Tauri..............	57,4	11,8	26,1	40,5	54,8	9,4	5 . 28 . 23,6		B.
	α Orionis............	26,0	39,7	53,1	6,6	20,1	33,9	5 . 46 . 47,4		B.
	Castor...............	11,1	26,8	42,6	58,4	14,5	30,5	7 . 24 . 46,4		B.
	Procyon..............	51,5	5,1	18,6	32,2	45,6	59,1	7 . 31 . 12,9		B.
	Pollux	21,2	36,5	51,8	7,1	21,9	37,7	7 . 35 . 52,4		B.
	α Hydræ............	40,1	54,0	7,4	20,7	34,1	48,0	9 . 20 . 2,1		B.
	Regulus..............	46,6	0,7	14,2	27,9	41,9	55,7	10 . 0 . 9,5		B.
	i Sextantis...........	23,7	37,3	50,8	4,1	17,5	31,1	10 . 18 . 44,4		B.
	Jupiter 1 L...........	2,0	......	29,1	......	56,1	......	10 . 51 . 23,9	- 0,02	B.
	Jupiter 2 L...........	......	18,8	......	45,7	......	13,2	10 . 51	+ 0,02	B.
	β Leonis............	49,7	3,9	17,5	31,3	45,2	59,5	11 . 41 . 13,4		B.
	3 Corvi..............	44,1	58,3	13,0	27,1	42,2	56,7	12 . 3 . 11,3		B.
	n Virginis...........	25,3	39,2	52,3	6,1	19,3	32,8	12 . 10 . 46,1		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
11 . 24 . 21,30		+ 1,29	21,37			1,38	13,31	11 . 24 . 35,34	A.S.C. 1355.
11 . 40 . 35,50			35,48	49,41	13,93			11 . 40 . 49,46	β Leonis.
11 . 52 . 32,04			32,09					11 . 52 . 46,08	A.S.C. 1388.
13 . 0 . 14,27	16,45		18,46	32,56	14,10			1 . 0 . 32,52	Polaris SP.
0 . 25 . 46,13			50,72			1,35	14,68	0 . 27 . 5,43	☉'s center.
0 . 27 . 55,23									
1 . 0 . 24,24	21,80		19,92	32,56	12,64			1 . 0 . 34,66	Polaris.
1 . 57 . 47,56			47,53	2,37	14,84			1 . 58 . 2,32	α Arietis.
2 . 43 . 2,93			2,90					2 . 43 . 17,73	☽ 1 L.
4 . 26 . 22,68			22,66	37,72	15,06			4 . 26 . 37,59	Aldebaran.
5 . 6 . 30,31			30,39	45,35	14,96			5 . 6 . 45,36	Rigel.
5 . 15 . 48,46			48,40	3,42	15,02			5 . 16 . 3,38	β Tauri.
5 . 46 . 9,33			9,34	24,45	15,11			5 . 46 . 24,35	α Orionis.
7 . 24 . 1,27			1,19	16,29	15,10			7 . 24 . 16,29	Castor.
7 . 30 . 34,91			34,93	49,86	14,93			7 . 30 . 50,03	Procyon.
7 . 35 . 9,60			9,53	24,64	15,11			7 . 35 . 24,64	Pollux.
9 . 19 . 23,67			23,75	38,81	15,06			9 . 19 . 38,95	α Hydræ.
9 . 59 . 30,71			30,71	45,92	15,21			9 . 59 . 45,95	Regulus.
10 . 18 . 6,77			6,82					10 . 18 . 22,08	i Sextantis.
10 . 51 . 31,78			33,33					10 . 51 . 48,62	Jupiter's center.
10 . 51 . 34,85									
11 . 24 . 19,76			19,83					11 . 24 . 35,15	A.S.C. 1355.
11 . 40 . 34,07			34,05	49,41	15,36			11 . 40 . 49,39	β Leonis.
11 . 52 . 30,55			30,60					11 . 52 . 45,95	A.S.C. 1388.
12 . 2 . 30,11			30,26					12 . 2 . 45,62	3 Corvi.
12 . 10 . 8,37			8,42					12 . 10 . 23,79	n Virginis.
12 . 26 . 22,83			22,46					12 . 26 . 37,84	κ Draconis.
13 . 0 . 12,80	14,98		16,99	32,58	15,59			1 . 0 . 32,40	Polaris SP.
22 . 26 . 3,36			3,42					22 . 26 . 19,36	Venus 2 L.
0 . 29 . 22,85			27,40				16,03	0 . 30 . 43,46	☉'s center.
0 . 31 . 31,88									
1 . 0 . 22,27	19,83		17,95	32,59	14,64			1 . 0 . 34,04	Polaris.
0 . 33 . 59,65			4,22			1,29	17,35	0 . 35 . 21,60	☉'s center.
0 . 36 . 8,76									
1 . 0 . 18,19	15,75		13,87	32,62	18,75			1 . 0 . 31,27	Polaris.
4 . 26 . 19,95			19,93	37,69	17,76			4 . 26 . 37,52	Aldebaran.
4 . 42 . 33,94			33,88					4 . 42 . 51,48	☽ 1 L.
5 . 6 . 27,55			27,63	45,32	17,69			5 . 6 . 45,25	Rigel.
5 . 15 . 45,76			45,70	3,38	17,68			5 . 16 . 3,33	β Tauri.
5 . 27 . 40,51			40,48					5 . 27 . 58,12	ζ Tauri.
5 . 46 . 6,69			6,70	24,42	17,72			5 . 46 . 24,36	α Orionis.
7 . 23 . 58,62			58,54	16,26	17,72			7 . 24 . 16,29	Castor.
7 . 30 . 32,14			32,16	49,83	17,67			7 . 30 . 49,91	Procyon.
7 . 35 . 6,95			6,88	24,60	17,72			7 . 35 . 24,64	Pollux.
9 . 19 . 20,91			20,99	38,79	17,80			9 . 19 . 38,84	α Hydræ.
9 . 59 . 28,07			28,07	45,90	17,83			9 . 59 . 45,96	Regulus.
10 . 18 . 4,13			4,18					10 . 18 . 22,08	i Sextantis.
10 . 50 . 42,72			44,33					10 . 51 . 2,26	Jupiter's center.
10 . 50 . 45,92									
11 . 40 . 31,50			31,48	49,42	17,94			11 . 40 . 49,46	β Leonis.
12 . 2 . 27,53			27,68					12 . 2 . 45,68	3 Corvi.
12 . 10 . 5,87			5,92					12 . 10 . 23,92	n Virginis.

Error of Collimation = + 1″,62.

Level Error = − 3″,24.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Mar. 30	κ Draconis.............	24.18,4	24.58,8	25.39,2	26.19,7	27. 0,5	27.41,5	12 . 28 . 21,9		B.
	Polaris SP............	35.17,4	43.37,3	51.57,5	0.19,2	8.30,7	16.42,8	13 . 24 . 57,6		B.
Apr. 1	κ Aurigæ..	57,3	12,8	28,1	43,4	58,9	14,8	6 . 5 . 30,0		B.
	ϵ Geminorum..........	53,7	8,7	23,3	38,1	53,0	8,1	6 . 34 . 22,7		B.
	☽ 1 L .... (unsteady)	37,2	53,0	8,8	24,1	39,8	55,9	6 . 44 . 11,4		B.
	ι Geminorum..........	34,2	49,8	5,0	19,9	35,2	50,7	7 . 16 . 6,1		B.
	Castor.................	8,7	24,3	40,4	56,1	11,9	28,1	7 . 24 . 43,7		B.
	Procyon	48,9	2,7	16,1	29,3	43,2	56,5	7 . 31 . 10,2		B.
	Pollux.................	18,8	34,1	49,1	4,3	19,8	35,2	7 . 35 . 50,3		B.
	Venus 2 L.	27,1	40,6	54,1	7,4	20,9	34,5	22 . 29 . 48,2		B.
	α Pegasi..............	38,1	52,1	5,8	19,6	33,8	47,9	22 . 57 . 1,8		B.
	α Andromedæ.........	53,5	8,8	23,9	39,1	54,7	10,1	0 . 0 . 25,3		B.
Apr. 2	⊙ 1 L................	10,1	23,3	37,0	50,3	3,9	17,7	0 . 44 . 31,1		B.
	⊙ 2 L................	19,1	32,4	46,0	59,4	13,0	26,7	0 . 46 . 40,2		B.
	Polaris	35.26,7	......	51.59,5	0.10,4	8.27,8	16.54,3	1 . 25 . 11,6	− 2 . 45,35	B.
	Venus 2 L... (very unsteady)	46,8	0,8	13,6	27,2	40,8	54,7	22 . 31 . 8,2		B.
Apr. 3	⊙ 1 L................	46,6	0,1	13,4	27,3	40,5	54,1	0 . 48 . 7,7		B.
	⊙ 2 L................	56,1	9,4	22,9	36,3	50,1	3,7	0 . 50 . 17,3		B.
	Polaris.................	35.10,6	43.35,4	51.59,8	0.25,3	......	16.52,7	1 . 25 . 7,5	+ 1 . 22,39	B.
	(a) Mercury 1 L.........	4,3	18,0	31,3	45,1	58,9	12,6	1 . 7 . 26,0		B.
	Aldebaran...........	32,9	46,7	0,9	14,8	28,7	42,9	4 . 26 . 56,9		B.
	Rigel	41,5	54,9	8,8	22,1	35,6	49,4	5 . 7 . 3,1		B.
	κ Aurigæ..	54,4	9,9	25,4	40,9	56,3	11,9	6 . 5 . 27,1		B.
	(b) ϵ Geminorum.........	50,7	5,7	20,5	35,1	50,1	5,4	6 . 34 . 20,1		B.
Apr. 4	(a) ⊙ 2 L...............	33,1	46,8	0,3	14,1	27,3	41,0	0 . 53 . 54,8		B.
	Venus 2 L...........	47,1	0,7	14,2	27,5	41,2	54,5	22 . 34 . 8,4		B.
Apr. 5	(a) ⊙ 1 L................	1,2	14,7	28,0	41,7	55,3	......	0 . 55	+ 13,59	B.
	⊙ 2 L................	10,4	24,1	37,5	......	......	......	0 . 57	+ 27,09	B.
	Polaris. (cloudy and unsteady)	35.20,7	......	......	0. 7,3	8.34,6	16.46,8	1	+ 1,13	B.
Apr. 7	(c) α Hydræ	30,1	43,4	57,2	10,9	24,3	38,1	9 . 19 . 51,3		B.
	Regulus..............	36,6	50,5	4,1	17,8	31,5	45,4	9 . 59 . 59,3		B.
	Jupiter 1 L...........	6,8	......	33,9	......	1,7	......	10 . 49 . 28,1	− 0,02	B.
	Jupiter 2 L...........	......	23,2	......	50,1	......	17,7	10 . 49	+ 0,02	B.
	ι Leonis..............	21,7	35,0	49,0	2,7	16,1	30,1	11 . 15 . 44,1		B.
	υ Leonis..............	32,7	46,3	59,6	13,2	26,5	40,2	11 . 28 . 53,5		B.
	☽ 1 L................	54,0	7,8	21,6	35,1	49,0	3,0	11 . 40 . 16,6		B.
	b Virginis............	32,6	46,1	59,3	12,7	26,1	39,8	11 . 51 . 53,2		B.
	η Virginis............	31,2	44,4	57,8	11,1	24,4	38,1	12 . 11 . 51,4		B.
Apr. 8	υ Leonis..............	31,7	44,9	58,4	11,7	25,3	38,8	11 . 28 . 52,2		B.
	β Leonis..............	39,2	52,5	6,4	20,1	33,9	48,3	11 . 41 . 2,2		B.
	b Virginis............	31,1	44,7	58,1	11,6	25,1	38,9	11 . 51 . 52,2		B.
	η Virginis............	29,5	43,1	56,3	9,7	23,1	37,0	12 . 11 . 50,2		B.
	☽ 1 L.......... (unsteady)	1,1	14,7	28,3	41,9	56,0	9,7	12 . 23 . 23,3		B.
	γ^1 Virginis............	19,7	33,1	46,1	59,8	13,2	27,0	12 . 33 . 40,3		B.
	ψ Virginis............	48,0	1,7	15,1	28,4	42,1	55,7	12 . 46 . 9,5		B.
Apr. 9	α Hydræ............	28,2	41,4	55,0	8,7	22,1	35,8	9 . 19 . 49,2		B.
	Regulus..............	34,1	48,0	2,1	15,8	29,3	43,2	9 . 59 . 57,1		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.
April 5, 2^h. Transit twice levelled with the Telescope in different positions.

(*a*) Cloudy and very great motion.
(*b*) Disturbed.
(*c*) Loud wind during the observations of this day.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0^h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	
12 . 26 . 20,00		+ 1,29	19,63			1,29	17,35	12 . 26 . 37,65	κ Draconis.
13 . 0 . 11,79	13,97		15,98	32,63	16,65			1 . 0 . 34,03	Polaris SP.
6 . 4 . 43,61			43,54			1,35	19,74	6 . 5 . 3,62	κ Aurigæ.
6 . 33 . 38,23			38,18					6 . 33 . 58,29	ε Geminorum.
6 . 43 . 24,31			24,25					6 . 43 . 44,37	☽ 1 L.
7 . 15 . 20,13			20,07					7 . 15 . 40,22	ι Geminorum.
7 . 23 . 56,17			56,09	16,22	20,13			7 . 24 . 16,25	Castor.
7 . 30 . 29,56			29,58	49,80	20,22			7 . 30 . 49,74	Procyon.
7 . 35 . 4,51			4,44	24,57	20,13			7 . 35 . 24,61	Pollux.
22 . 29 . 7,55			7,60			1,46	19,72	22 . 29 . 28,69	Venus 2 L.
22 . 56 . 19,88			19,85	40,98	21,13			22 . 56 . 40,97	α Pegasi.
23 . 59 . 39,35	39,21		39,25	0,41	21,16			0 . 0 . 0,43	α Andromedæ.
0 . 43 . 50,48			} 55,02				21,18	0 . 45 . 16,24	⨀'s center.
0 . 45 . 59,55									
1 . 0 . 16,27	12,87		10,99	32,59	21,60			1 . 0 . 32,23	Polaris.
22 . 30 . 27,45		+ 1,72	27,53			1,44	21,18	22 . 30 . 50,06	Venus 2 L.
0 . 47 . 27,10			} 31,84				22,62	0 . 48 . 54,51	⨀'s center.
0 . 49 . 36,54									
1 . 0 . 14,27	10,87		8,37	32,54	24,17			1 . 0 . 31,05	Polaris.
1 . 6 . 45,17			45,18					1 . 7 . 7,87	Mercury 1 L.
4 . 26 . 14,83	14,73		14,80	37,64	22,84			4 . 26 . 37,68	Aldebaran.
5 . 6 . 22,20	22,19		22,29	45,26	22,97			5 . 6 . 45,22	Rigel.
6 . 4 . 40,84			40,75					6 . 5 . 3,74	κ Aurigæ.
6 . 33 . 35,37			35,30					6 . 33 . 58,31	ε Geminorum.
0 . 53 . 13,91			13,93			1,20	23,82	0 . 53 . 37,79	⨀ 2 L.
22 . 33 . 27,66			27,74					22 . 33 . 52,69	Venus 2 L.
0 . 54 . 41,77			} 46,45				25,02	0 . 56 . 11,52	⨀'s center.
0 . 56 . 51,09									
1 . 0 . 13,48			7,58	32,41	24,83			1 . 0 . 32,65	Polaris.
9 . 19 . 10,75		+ 0,90	10,78	38,70	27,92	1,08	27,52	9 . 19 . 38,72	α Hydræ.
9 . 59 . 17,89			17,84	45,83	27,99			9 . 59 . 45,81	Regulus.
10 . 48 . 47,60			} 48,95					10 . 49 . 16,96	Jupiter's center.
10 . 48 . 50,35									
11 . 15 . 2,67			2,63					11 . 15 . 30,66	ι Leonis.
11 . 28 . 13,14			13,15					11 . 28 . 41,19	υ Leonis.
11 . 39 . 35,30			35,30					11 . 40 . 3,34	☽ 1 L.
11 . 51 . 12,83			12,81					11 . 51 . 40,86	*b* Virginis.
12 . 11 . 11,20			11,21					12 . 11 . 39,28	η Virginis.
11 . 28 . 11,85			11,86			1,10	28,57	11 . 28 . 40,96	υ Leonis.
11 . 40 . 20,37			20,31	49,41	29,10			11 . 40 . 49,41	β Leonis.
11 . 51 . 11,67			11,65					11 . 51 . 40,76	*b* Virginis.
12 . 11 . 9,85			9,86					12 . 11 . 38,99	η Virginis.
12 . 22 . 42,14			42,16					12 . 23 . 11,30	☽ 1 L.
12 . 32 . 59,89			59,90					12 . 33 . 29,04	γ^1 Virginis.
12 . 45 . 28,65			28,69					12 . 45 . 57,84	ψ Virginis.
9 . 19 . 8,63		+ 1,17	8,68	38,67	29,99	1,06	29,72	9 . 19 . 38,81	α Hydræ.
9 . 59 . 15,66			15,61	45,81	30,20			9 . 59 . 45,77	Regulus.

Error of Collimation = + 1",62.

Level Error = – 3",24. From Venus April 1, – 3",72.

Meridian Errors from Venus April 2, from April 7, and from April 9, by bisections of Grantchester cross on April 5, 7, and 13, respectively, with correction – 1",22.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Apr. 9	Jupiter 1 L. } .. (very hazy)	28,1	......	55,3	......	22,6	......	10 . 47 . 50,0	– 0,02	B.
	Jupiter 2 L. }	......	44,7	......	12,0	......	39,4	10 . 47	+ 0,02	B.
	ι Leonis	19,3	33,1	46,4	0,3	14,0	27,3	11 . 15 . 40,7		B.
	γ¹ Virginis............	18,6	32,1	45,3	58,6	12,2	25,7	12 . 33 . 39,2		B.
	ψ Virginis............	46,9	0,2	14,0	27,4	41,1	55,0	12 . 46 . 8,4		B.
	☽ 1 L. } .... (hazy)	52,3	6,2	19,9	33,8	48,0	1,9	13 . 7 . 15,8		B.
	(a) ☽ 2 L. }	57,0	10,5	24,2	38,0	52,1	6,2	13 . 9 . 20,1		B.
	Spica	30,6	44,1	57,6	11,1	25,1	38,7	13 . 16 . 52,3		B.
Apr. 10	Regulus	33,6	47,2	1,0	14,6	28,3	42,4	9 . 59 . 56,0		C.
	Jupiter 1 L.	10,1	......	37,2	......	4,3	......	10 . 47 . 31,7	– 0,02	C.
	Jupiter 2 L.	......	26,4	......	53,6	......	21,0	10 . 47	+ 0,02	C.
	β Leonis..............	36,5	50,4	4,3	18,1	32,0	46,2	11 . 41 . 0,1		C.
	Venus 2 L.	17,1	30,8	44,1	57,6	11,5	24,8	22 . 45 . 38,3		B.
	α Pegasi..............	27,6	41,4	55,1	9,1	22,9	37,1	22 . 56 . 50,8		B.
	α Andromedæ.........	42,9	58,0	13,3	28,4	43,9	59,2	0 . 0 . 14,5		B.
	Polaris...... (very unsteady)	......	43.27,5	51.44,8	59.57,4	8.17,7	......	1 . 25 . 32,3	– 1 . 38,41	B.
Apr. 11	⊙ 1 L. } .... (loud wind)	49,8	3,7	17,1	30,7	44,4	58,2	1 . 17 . 12,1		B.
	⊙ 2 L. }	59,8	13,4	27,1	40,7	54,2	7,8	1 . 19 . 21,3		B.
	Pollux................	6,6	21,7	37,0	52,2	7,7	23,0	7 . 35 . 38,2		B.
	Arcturus..............	3,4	17,4	31,7	46,1	0,4	15,1	14 . 8 . 29,3		B.
	(b) λ Virginis..............	......	......	36,4	50,1	4,2	18,1	14 . 10 . 31,8	– 13,76	B.
	ε Bootis..............	39,1	54,1	9,1	24,0	39,4	54,4	14 . 38 . 10,2		B.
	(c) α² Libræ	43,1	57,1	11,1	24,5	39,1	52,9	14 . 42 . 7,1		B.
	☽ 2 L................	14,0	27,9	42,3	57,0	11,8	26,1	14 . 43 . 41,1		B.
	ι¹ Libræ..............	46,1	0,8	14,6	29,1	43,3	57,7	15 . 3 . 12,1		B.
	Venus 2 L.	31,4	45,0	58,7	12,1	25,4	39,1	22 . 42 . 52,6		B.
	α Pegasi..............	27,4	41,2	54,2	8,1	22,0	36,0	22 . 56 . 49,8		B.
Apr. 12	⊙ 1 L. } .... (cloudy)	......	......	56,1	10,2	24,0	37,4	1 . 20 . 51,1	– 13,62	B.
	⊙ 2 L. }	39,1	52,8	6,2	19,9	33,5	47,2	1 . 23 . 1,2		B.
	Aldebaran............	22,3	36,1	50,1	4,2	18,2	32,1	4 . 26 . 46,2		B.
	Rigel	31,0	44,5	58,1	11,6	25,2	38,9	5 . 6 . 52,6		B.
	Castor................	54,9	10,9	26,7	42,4	58,4	14,6	7 . 24 . 30,2		B.
	Procyon	35,7	49,1	2,6	16,1	29,6	43,3	7 . 30 . 56,8		B.
	Pollux................	5,4	20,6	35,7	50,9	6,5	21,6	7 . 35 . 37,1		B.
	Regulus	31,1	45,1	58,4	12,2	26,1	39,9	9 . 59 . 53,7		B.
	Jupiter 1 L.	35,3	......	2,5	......	29,7	......	10 . 46 . 57,0	– 0,02	B.
	Jupiter 2 L.	......	52,0	.....	19,2	......	46,4	10 . 46	+ 0,02	B.
Apr. 16	⊙ 1 L. } ... (faint and unsteady)	8,6	22,1	35,8	49,3	3,1	17,1	1 . 35 . 30,8		B.
	⊙ 2 L. }	19,1	32,5	46,0	59,6	13,2	27,4	1 . 37 . 41,1		B.
	α Hydræ	19,4	32,9	46,7	0,2	13,7	27,4	9 . 19 . 40,9		B.
	Regulus	26,0	39,7	53,4	7,2	21,1	35,0	9 . 59 . 48,9		B.
	Jupiter 1 L.	32,6	......	0,1	......	27,0	......	10 . 46 . 54,3	– 0,02	B.
	Jupiter 2 L.	......	49,5	......	16,4	......	43,7	10 . 46	+ 0,02	B.
	β Leonis..............	29,1	43,1	57,0	10,9	24,9	39,1	11 . 40 . 52,9		B.
	3 Corvi	23,1	37,8	52,2	7,1	21,2	36,1	12 . 2 . 50,8		B.
	n Virginis............	5,1	18,3	31,7	45,1	58,4	12,1	12 . 10 . 25,7		B.
	κ Draconis	23.58,1	24.38,8	25.19,1	25.59,2	26.40,6	27.21,3	12 . 28 . 2,2		B.
	Polaris SP.	34.49,6	43. 8,3	51.29,8	59.46,5	7.59,7	16.13,4	13 . 24 . 33,5		B.
Apr. 17	Jupiter 1 L. } (very cloudy)	18,7	......	46,0	......	13,3	......	10 . 45 . 40,8	– 0,02	B.
	Jupiter 2 L. }	......	35,3	......	2,6	......	30,1	10 . 45	+ 0,02	B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.
The Transit levelled April 12, 6ʰ, and April 23, 6ʰ.

(*a*) Correction applied to apparent Æ of 2 L. for defect of illumination = + 0ˢ,01.

(*b*) Hurried.

(*c*) Confused and hurried.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	
10.47. 8,98 10.47.12,05		+ 1,17	10,49			1,06	29,72	10.47.40,69	Jupiter's center.
11.15. 0,15			0,11					11.15.30,33	ι Leonis.
12.32.58,82			58,83					12.33.29,10	γ^1 Virginis.
12.45.27,57			27,62					12.45.57,90	ψ Virginis.
13. 6.33,98			34,03					13. 7. 4,33	☽ 1 L.
13. 8.38,30			38,35					13. 9. 8,66	☽ 2 L.
13.16.11,35			11,40	41,80	30,40			13.16.41,71	Spica.
9.59.14,73			14,68	45,80	31,12	1,12	30,67	9.59.45,82	Regulus.
10.46.50,80 10.46.53,69			52,22					10.47.23,39	Jupiter's center.
11.40.18,23			18,17	49,41	31,24			11.40.49,38	β Leonis.
22.44.57,75			57,79			1,24	30,62	22.45.29,58	Venus 2 L.
22.56. 9,15			9,10	41,16	32,06			22.56.40,90	α Pegasi.
23.59.28,60	28,45		28,49	0,55	32,06			0. 0. 0,35	α Andromedæ.
1. 0. 9,53	5,70		4,00	32,75	28,75		31,86	1. 0.35,91	Polaris.
1.16.30,85 1.18.40,61			35,70					1.18. 7,63	☉'s center.
7.34.52,34			52,22	24,40	32,18			7.35.24,47	Pollux.
14. 7.46,20			46,12	18,51	32,39			14. 8.18,71	Arcturus.
14. 9.50,36			50,43					14.10.23,02	λ Virginis.
14.37.24,33			24,22	56,87	32,65			14.37.56,68	ε Bootis.
14.41.24,99			25,06	57,49	32,43			14.41.57,68	α^2 Libræ.
14.42.57,17			57,28					14.43.29,90	☽ 2 L.
15. 2.29,10			29,21					15. 3. 1,85	ι^1 Libræ.
22.42.12,04			12,08			1,25	31,81	22.42.45,07	Venus 2 L.
22.56. 8,39			8,34	41,18	32,84			22.56.41,34	α Pegasi.
1.20.10,14 1.22.19,99			15,04				33,06	1.21.48,17	☉'s center.
4.26. 4,17			4,11	37,54	33,43			4.26.37,40	Aldebaran.
5. 6.11,70			11,75	45,15	33,40			5. 6.45,08	Rigel.
7.23.42,58			42,45	16,01	33,56			7.24.15,90	Castor.
7.30.16,17			16,16	49,62	33,46			7.30.49,61	Procyon.
7.34.51,11			50,99	24,38	33,39			7.35.24,44	Pollux.
9.59.12,35			12,30	45,78	33,48			9.59.45,88	Regulus.
10.46.16,11 10.46.19,22			17,64					10.46.51,26	Jupiter's center.
1.34.49,55 1.36.59,85		+ 2,02	54,63			1,14	37,96	1.36.32,67	☉'s center.
9.19. 0,17			0,20	38,58	38,38			9.19.38,60	α Hydræ.
9.59. 7,33			7,25	45,73	38,48			9.59.45,68	Regulus.
10.46.13,48 10.46.16,55			14,96					10.46.53,43	Jupiter's center.
11.40.11,00	10,82		10,90	49,39	38,49			11.40.49,41	β Leonis.
12. 2. 6,90			7,01					12. 2.45,54	3 Corvi.
12. 9.45,20			45,19					12.10.23,73	*n* Virginis.
12.25.59,90			59,40					12.26.37,95	κ Draconis.
12.59.42,97	48,97		52,12	33,99	41,87			1. 0.30,70	Polaris SP.
10.44.59,68 10.45. 2,69			1,11			1,14	39,09	10.45.40,71	Jupiter's center.

Error of Collimation = + 1",62. From April 16 = + 0",61, by the reversion of the Transit on April 30.
Level Error = − 3",72. From April 9 = − 3",94. From April 17 = − 4",22.
Meridian Error from April 16 by Polaris SP and Polaris April 27, allowing + 0^s,60 for loss of clock and − 0^s,19 for change of Æ.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Apr. 17	β Leonis.............	28,0	41,7	56,0	9,7	23,7	38,1	11 . 40 . 51,8		B.
	A.S.C. 1404..........	0.39,6	1.47,2	2.54,1	4. 1,4	5. 9,2	6.17,3	12 . 7 . 24,9		B.
	Polaris SP...........	34.47,7	43. 6,8	51.31,2	59.50,4	7.59,6	16.13,3	13 . 24 . 31,7		B.
Apr. 19	Jupiter 1 L. (very cloudy)	52,7	......	20,0	......	46,9	......	10 . 45 . 14,9	− 0,02	B.
	Jupiter 2 L.	......	9,3	......	36,5	......	4,1	10 . 45	+ 0,02	B.
Apr. 21	α Hydræ............	13,5	27,3	40,7	54,2	7,9	21,2	9 . 19 . 35,0		B.
	Regulus...... (Temp. 42°)	20,2	34,0	47,3	1,1	15,1	29,2	9 . 59 . 42,8		B.
	(*a*) Jupiter 1 L..........	......	43,4	......	10,1	24,1	......	10 . 44 . 51,1	− 6,78	B.
	Jupiter 2 L..........	32,4	......	59,9	......	......	40,7	10 . 44	+ 9,05	B.
	β Leonis.............	23,2	37,1	51,1	5,0	19,2	33,1	11 . 40 . 47,1		B.
	f Canum Venat.......	37,7	54,3	11,1	27,6	44,5	1,6	12 . 58 . 18,2		B.
	Spica...............	16,4	30,1	44,2	57,4	11,2	25,1	13 . 16 . 38,4		B.
	Arcturus............	52,0	6,1	20,2	34,3	48,6	3,1	14 . 8 . 17,3		B.
	α Serpentis..........	54,4	8,1	21,4	35,0	48,6	2,4	15 . 36 . 16,1		B.
Apr. 23	Arcturus............	49,4	3,7	18,1	32,2	46,6	1,3	14 . 8 . 15,4		B.
	α^2 Libræ............	29,1	43,0	57,1	11,2	25,1	39,1	14 . 41 . 52,9		B.
	A.S.C. 1698..........	12,3	26,1	40,0	54,1	8,7	22,8	14 . 49 . 36,9		B.
	A.S.C. 1709..........	20,5	35,1	49,6	4,2	19,0	33,2	14 . 56 . 47,7		B.
	A.S.C. 1752... (very faint)	35,1	49,0	3,3	17,2	31,5	45,7	15 . 21 . 0,1		B.
	α Serpentis..........	52,3	6,1	19,7	33,1	46,5	0,3	15 . 36 . 13,8		B.
Apr. 24	Regulus.............	16,8	30,9	44,0	58,2	12,2	26,0	9 . 59 . 39,8		B.
	Jupiter 1 L..........	59,7	......	26,9	......	54,0	......	10 . 44 . 21,3	− 0,02	B.
	Jupiter 2 L..........	......	16,3	......	43,4	......	11,1	10 . 44	+ 0,02	B.
	β Leonis.............	20,0	33,9	48,1	1,8	15,9	29,8	11 . 40 . 43,7		B.
	A.S.C. 1404..........	0.31,4	1.38,5	2.45,8	3.53,3	4. 0,7	5. 8,9	12 . 6 . 16,6		B.
	H Virginis...........	33,6	47,1	0,9	14,4	28,1	42,2	12 . 10 . 55,4		B.
	(*b*) Polaris SP..........	34.45,3	43. 6,8	51.23,5	59.43,6	7.54,2	16. 7,7	13 . 24 . 20,4		B.
	Arcturus............	48,4	2,6	17,2	31,3	45,3	59,8	14 . 8 . 14,1		B.
	t Bootis.............	59,0	12,7	26,7	40,4	54,3	8,2	14 . 11 . 22,2		B.
	α^2 Libræ............	27,9	42,2	55,8	10,2	23,8	37,7	14 . 41 . 51,8		B.
	A.S.C. 1698..........	10,9	24,7	39,1	52,7	7,1	20,9	14 . 49 . 35,2		B.
	A.S.C. 1709..........	19,2	33,9	48,0	2,7	17,2	32,1	14 . 56 . 46,3		B.
	A.S.C. 1720..........	2,1	17,0	32,0	46,5	2,0	16,7	15 . 1 . 31,7		B.
	A.S.C. 1752..........	34,1	48,0	2,1	16,2	30,1	44,0	15 . 20 . 58,4		B.
	A.S.C. 1769..........	16,0	30,7	45,1	0,2	15,1	30,2	15 . 27 . 45,3		B.
	α Serpentis..........	51,3	4,7	18,2	31,9	45,3	59,1	15 . 36 . 12,6		B.
	Saturn 1 L...........	54,1	......	22,3	......	50,4	......	15 . 41 . 19,0	− 0,02	B.
	Saturn 2 L...........	......	11,7	......	39,5	......	8,0	15 . 41	+ 0,02	B.
Apr. 27	Regulus.............	13,0	27,0	40,7	54,2	8,1	21,9	9 . 59 . 35,7		B.
	Jupiter 1 L..........	35,7	......	2,9	......	29,2	......	10 . 43 . 57,1	− 0,02	B.
	Jupiter 2 L..........	......	52,3	......	19,1	......	46,4	10 . 43	+ 0,02	B.
	Polaris SP...........	34.42,2	43. 5,8	51.20,7	59.42,5	7.53,6	16. 7,4	13 . 24 . 22,3		B.
	i Draconis...........	18,7	51,1	23,6	55,7	28,4	1,1	13 . 47 . 33,4		B.
	Arcturus............	44,4	59,3	13,2	27,3	41,3	56,2	14 . 8 . 10,4		B.
	α^2 Libræ............	24,1	38,1	52,0	6,1	19,9	34,2	14 . 41 . 48,1		B.
	α Serpentis..........	47,3	1,1	14,3	27,7	41,4	55,1	15 . 36 . 8,7		B.
	Saturn 1 L. (much motion)	2,1	......	29,9	......	58,0	......	15 . 40 . 26,1	− 0,02	B.
	Saturn 2 L.	......	19,2	......	47,2	......	15,3	15 . 40	+ 0,02	B.
	(*c*) Polaris.............	......	......	......	59.47,7	......	16.28,8	1 . 24 . 47,5	− 13 . 46,85	B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.

(*a*) Confused.

(*b*) Cloudy and unsteady. The minute of wire I. was written down 35.

(*c*) Very cloudy and very unsteady.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	
11 . 40 . 9,86	9,66	+ 2,02	9,74	49,39	39,65	1,14	39,09	11 . 40 . 49,38	β Leonis.
12 . 4 . 1,95			0,58					12 . 4 . 40,24	A.S.C. 1404.
12 . 59 . 42,96	49,49		52,64	34,14	41,50			1 . 0 . 32,35	Polaris SP.
10 . 44 . 33,60			35,05				41,37	10 . 45 . 16,93	Jupiter's center.
10 . 44 . 36,65									
9 . 18 . 54,26			54,28	38,52	44,24	1,06	43,78	9 . 19 . 38,47	α Hydræ.
9 . 59 . 1,38			1,29	45,68	44,39			9 . 59 . 45,51	Regulus.
10 . 44 . 10,39			11,81					10 . 44 . 56,06	Jupiter's center.
10 . 44 . 13,38									
11 . 40 . 5,11			4,99	49,37	44,38			11 . 40 . 49,28	β Leonis.
12 . 57 . 27,86			27,62					12 . 58 . 11,97	*f* Canum Venat.
13 . 15 . 57,55			57,57	41,88	44,31			13 . 16 . 41,94	Spica.
14 . 7 . 34,51			34,38	18,61	44,23			14 . 8 . 18,78	Arcturus.
15 . 35 . 35,14			35,08	19,49	44,41			15 . 36 . 19,55	α Serpentis.
14 . 7 . 32,38			32,25	18,62	46,37	1,22	45,71	14 . 8 . 18,68	Arcturus.
14 . 41 . 11,07			11,13	57,66	46,53			14 . 41 . 57,59	α^2 Libræ.
14 . 48 . 54,41			54,29					14 . 49 . 40,75	A.S.C. 1698.
14 . 56 . 4,18			4,28					14 . 56 . 50,75	A.S.C. 1709.
15 . 20 . 17,42			17,48					15 . 21 . 3,97	A.S.C. 1752.
15 . 35 . 33,11			33,05	19,52	46,47			15 . 36 . 19,55	α Serpentis.
9 . 58 . 58,27			58,18	45,64	47,46	1,24	46,92	9 . 59 . 45,61	Regulus.
10 . 43 . 40,45			41,96					10 . 44 . 29,43	Jupiter's center.
10 . 43 . 43,62									
11 . 40 . 1,88	1,68		1,76	49,35	47,59			11 . 40 . 49,28	β Leonis.
12 . 3 . 53,60			52,23					12 . 4 . 39,77	A.S.C. 1404.
12 . 10 . 14,53			14,55					12 . 11 . 2,10	H Virginis.
12 . 59 . 37,36	43,89		47,04	35,79	48,75			1 . 0 . 34,63	Polaris SP.
14 . 7 . 31,24	31,03		31,11	18,63	47,52			14 . 8 . 18,76	Arcturus.
14 . 10 . 40,50			40,40					14 . 11 . 28,05	*t* Bootis.
14 . 41 . 9,91			9,97	57,68	47,71			14 . 41 . 57,65	α^2 Libræ.
14 . 48 . 52,94			52,82					14 . 49 . 40,51	A.S.C. 1698.
14 . 56 . 2,77			2,87					14 . 56 . 50,56	A.S.C. 1709.
15 . 0 . 46,86			46,70					15 . 1 . 34,40	A.S.C. 1720.
15 . 20 . 16,13			16,19					15 . 21 . 3,90	A.S.C. 1752.
15 . 27 . 0,37			0,51					15 . 27 . 48,23	A.S.C. 1769.
15 . 35 . 31,87			31,81	19,54	47,73			15 . 36 . 19,54	α Serpentis.
15 . 40 . 36,43			38,15					15 . 41 . 25,88	Saturn's center.
15 . 40 . 39,75									
9 . 58 . 54,37			54,29	45,61	51,32	1,28	50,74	9 . 59 . 45,56	Regulus.
10 . 43 . 16,20			17,68					10 . 44 . 8,99	Jupiter's center.
10 . 43 . 19,29									
12 . 59 . 36,36	42,42		45,57	37,09	51,52			1 . 0 . 37,00	Polaris SP.
13 . 45 . 56,00			55,41					13 . 46 . 46,88	*i* Draconis.
14 . 7 . 27,45	27,25		27,33	18,65	51,32			14 . 8 . 18,82	Arcturus.
14 . 41 . 6,07			6,13	57,71	51,58			14 . 41 . 57,65	α^2 Libræ.
15 . 35 . 27,96			27,91	19,59	51,68			15 . 36 . 19,48	α Serpentis.
15 . 39 . 44,00			45,70					15 . 40 . 37,28	Saturn's center.
15 . 39 . 47,25									
0 . 59 . 54,48	48,10		45,16	37,28	52,12		52,02	1 . 0 . 37,23	Polaris.

Error of Collimation = + 0″,61.

Level Error = − 4″,22. From April 27 = − 3″,97.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Apr. 28	(a) ☉ 2 L.	58,3	12,3	26,1	39,3	53,1	7,2	2 . 22 . 21,1		B.
May 1	☽ 1 L. (cloudy)	21,4	36,2	51,0	6,1	20,4	35,2	9 . 5 . 49,9		B.
	α Hydræ	1,4	14,9	28,5	42,1	55,6	9,4	9 . 19 . 22,7		B.
	β Leonis (Temp. 52°)	11,1	25,1	38,8	53,1	7,0	20,7	11 . 40 . 34,6		B.
	Polaris SP.	34.39,7	42.56,4	51. 8,6	59.21,8	7.41,5	16. 2,3	13 . 24 . 20,5		B.
	Arcturus	39,2	53,7	8,2	22,3	36,7	51,1	14 . 8 . 5,2		B.
	α Serpentis	42,8	56,3	9,9	23,3	37,1	50,5	15 . 36 . 3,9		B.
	Saturn 1 L.	49,3	......	17,9	......	46,0	......	15 . 39 . 13,8	+ 0,02	B.
	Saturn 2 L.	......	6,7	......	35,1	......	3,2	15 . 39	− 0,02	B.
	Polaris (loud wind)	35. 7,3	43.21,5	51.41,8	0. 2,6	8.14,4	16.28,2	1	+ 4 . 7,71	B.
May 2	Regulus	7,1	20,8	34,8	48,7	2,5	16,1	9 . 59 . 29,7		B.
	Polaris SP.	34.40,2	42.56,8	51. 9,3	59.22,7	......	......	13	+12 . 25,04	B.
	(b) Polaris	......	......	......	......	8.12,4	16.24,7	1	−12 . 23,68	B.
May 3	(c) ☉ 2 L.	54,9	8,6	22,8	37,1	50,8	4,5	2 . 41 . 18,7		B.
	α Hydræ	59,3	12,8	26,7	40,2	53,8	7,1	9 . 19 . 20,8		B.
	Regulus	6,5	20,2	34,1	47,9	1,4	14,9	9 . 59 . 28,6		B.
	γ Leonis	22,0	36,1	50,6	5,0	19,4	33,5	10 . 10 . 48,0		B.
	ρ Leonis	38,4	52,2	6,1	19,8	33,1	47,0	10 . 24 . 0,6		B.
	☽ 1 L. (unsteady)	27,9	41,9	56,0	9,7	23,8	38,1	10 . 39 . 51,9		B.
	Jupiter 1 L.	5,9	......	33,1	......	0,3	......	10 . 43 . 27,6	+ 0,02	B.
	Jupiter 2 L.	......	22,3	......	49,8	......	17,0	10 . 43	− 0,02	B.
	χ Leonis	1,9	15,2	28,9	42,4	56,1	9,6	10 . 56 . 23,1		B.
	σ Leonis	9,4	22,8	36,6	50,1	3,7	17,1	11 . 12 . 30,5		B.
	β Leonis	9,1	23,0	37,1	51,1	4,7	18,9	11 . 40 . 33,1		B.
	A.S.C. 1404	19,4	26,7	34,9	42,2	50,0	57,3	12 . 7 . 4,9		B.
	H Virginis	22,7	36,1	50,0	3,5	17,1	30,6	12 . 10 . 44,1		B.
	Polaris SP.	34.30,2	42.53,7	51.10,4	59.21,3	7.41,7	16. 4,4	13 . 24 . 17,5		B.
	o Virginis	18,7	31,2	45,4	59,1	12,6	25,9	13 . 34 . 39,1		B.
	i Draconis	11,1	43,9	16,2	49,1	21,2	53,6	13 . 47 . 25,7		B.
	Arcturus (blazing)	37,6	51,7	6,1	20,4	34,7	49,1	14 . 8 . 3,2		B.
	ι Bootis	48,1	2,0	15,9	29,7	43,4	57,1	14 . 11 . 11,2		B.
	α^2 Libræ	17,1	31,1	45,2	59,1	12,9	27,0	14 . 41 . 40,8		B.
	α Serpentis	40,2	54,1	7,6	21,2	34,5	48,1	15 . 36 . 1,9		B.
	Saturn 1 L.	12,8	......	40,8	......	9,0	......	15 . 39 . 37,0	+ 0,02	B.
	Saturn 2 L.	......	30,1	......	58,5	......	26,4	15 . 39	− 0,02	B.
	(d) Venus 2 L.	56,9	10,7	24,2	37,6	51,2	4,6	23 . 53 . 18,1		B.
	α Andromedæ	16,2	31,5	46,9	2,3	17,2	32,5	23 . 59 . 47,7		B.
	Polaris	35. 3,7	43.18,5	51.38,8	59.59,3	8.13,6	16.23,7	1 . 24 . 38,4		B.
May 4	☉ 1 L. (cloudy)	30,7	45,0	58,9	13,3	27,2	41,0	2 . 42 . 55,0		B.
	☉ 2 L.	43,6	57,3	11,5	25,8	......	......	2 . 45 . 7,4	+ 8,41	B.
	α Hydræ	58,1	11,6	25,3	39,2	52,3	6,1	9 . 19 . 19,5		B.
	Regulus	4,5	18,2	32,1	46,1	0,0	13,6	9 . 59 . 27,3		B.
	γ Leonis	20,9	35,0	49,4	4,1	18,1	32,4	10 . 10 . 46,5		B.
	ρ Leonis	37,3	51,0	4,7	18,4	32,0	45,6	10 . 23 . 59,2		B.
	χ Leonis	0,7	14,2	28,1	41,7	54,9	8,7	10 . 56 . 22,1		B.
	σ Leonis	8,1	21,7	35,3	49,1	2,3	16,1	11 . 12 . 29,3		B.
	☽ 1 L.	15,5	29,3	43,1	57,0	10,8	24,4	11 . 23 . 38,1		B.
	ν Virginis	53,1	6,8	20,5	34,1	47,4	1,1	11 . 37 . 14,5		B.
	β Virginis	36,9	50,3	4,0	17,6	30,8	44,2	11 . 41 . 58,1		B.
	A.S.C. 1404	0.17,9	1.25,7	2.34,1	3.41,3	4.48,9	5.56,2	12 . 7 . 3,5		B.
	H Virginis	21,3	34,9	48,4	2,3	16,0	29,2	12 . 10 . 42,9		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.
From May 1.................. WEST. .... *GFEDCBA*.
April 30, 2h. Transit levelled in two positions of the Telescope before the reversion.
April 30, 2½h. Transit reversed for Error of Collimation, and levelled in two positions of the Telescope immediately after the reversion.

(a) Very cloudy and very unsteady.
(b) Too cloudy for more wires.
(c) Cloudy and wind loud.
(d) Badly defined.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
2 . 21 . 39,63		+ 2,02	39,55			1,28	52,02	2 . 22 . 31,69	⊙ 2 L.
9 . 5 . 5,74		+ 1,35	5,39			1,01	56,06	9 . 6 . 1,83	☽ 1 L.
9 . 18 . 42,08			41,91	38,39	56,48			9 . 19 . 38,36	α Hydræ.
11 . 39 . 52,91			52,60	49,31	56,71			11 . 40 . 49,15	β Leonis.
12 . 59 . 27,26	39,87		41,98	38,48	56,50			1 . 0 . 38,59	Polaris SP.
14 . 7 . 22,34			22,00	18,67	56,67			14 . 8 . 18,65	Arcturus.
15 . 35 . 23,40			23,14	19,65	56,51			15 . 36 . 19,86	α Serpentis.
15 . 38 . 31,77			33,27					15 . 39 . 29,99	Saturn's center.
15 . 38 . 34,98									
0 . 59 . 57,01	43,96		42,00	38,63	56,63	1,08	56,86	1 . 0 . 38,90	Polaris.
9 . 58 . 48,53			48,24	45,55	57,31			9 . 59 . 45,55	Regulus.
12 . 59 . 27,29	39,90		42,01	38,79	56,78			1 . 0 . 39,45	Polaris SP.
0 . 59 . 54,87	41,82	+ 0,97	40,41	38,96	58,55	1,32	57,92	1 . 0 . 38,38	Polaris.
2 . 40 . 36,77			36,44					2 . 41 . 34,51	⊙ 2 L.
9 . 18 . 40,10			39,91	38,36	58,45			9 . 19 . 38,34	α Hydræ.
9 . 58 . 47,66			47,35	45,54	58,19			9 . 59 . 45,82	Regulus.
10 . 10 . 4,94			4,58					10 . 11 . 3,06	γ Leonis.
10 . 23 . 19,60			19,30					10 . 24 . 17,79	ρ Leonis.
10 . 39 . 9,90			9,60					10 . 40 . 8,11	☽ 1 L.
10 . 42 . 46,74			47,91					10 . 43 . 46,42	Jupiter's center.
10 . 42 . 49,68									
10 . 55 . 42,45			42,17					10 . 56 . 40,69	χ Leonis.
11 . 11 . 50,02			49,74					11 . 12 . 48,28	σ Leonis.
11 . 39 . 51,00			50,67	49,29	58,62			11 . 40 . 49,23	β Leonis.
12 . 3 . 42,20			40,12					12 . 4 . 38,70	A.S.C. 1404.
12 . 10 . 3,44			3,25					12 . 11 . 1,84	H Virginis.
12 . 59 . 25,60	38,21		39,72	39,14	59,42			1 , 0 . 38,35	Polaris SP.
13 . 33 . 58,86			58,60					13 . 34 . 57,27	*o* Virginis.
13 . 45 . 48,69			47,65					13 . 46 . 46,33	*i* Draconis.
14 . 7 . 20,40			20,05	18,68	58,64			14 . 8 . 18,74	Arcturus.
14 . 10 . 29,63			29,31					14 . 11 . 28,01	*t* Bootis.
14 . 40 . 59,03			58,88	57,78	58,90			14 . 41 . 57,60	α^2 Libræ.
15 . 35 . 21,08			20,81	19,68	58,87			15 . 36 . 19,59	α Serpentis.
15 . 38 . 54,92			56,48					15 . 39 . 55,26	Saturn's center.
15 . 38 . 58,31									
23 . 52 . 37,62		+ 0,76	37,38			1,30	58,02	23 . 52 . 36,69	Venus 2 L.
23 , 59 . 2,04			1,62	1,03	59,41			0 . 0 . 0,94	α Andromedæ.
0 . 59 . 53,71	40,66		39,55	39,32	59,77		59,32	1 . 0 . 38,92	Polaris.
2 . 42 . 13,01			18,93					2 . 44 . 18,40	⊙'s center.
2 . 44 . 25,53									
9 . 18 . 38,87			38,66	38,35	59,69			9 . 19 . 38,48	α Hydræ.
9 . 58 . 45,97			45,65	45,52	59,87			9 . 59 . 45,51	Regulus.
10 . 10 . 3,77			3,40					10 . 11 . 3,27	γ Leonis.
10 . 23 . 18,32			18,02					10 . 24 . 17,90	ρ Leonis.
10 . 55 . 41,48			41,19					10 . 56 . 41,10	χ Leonis.
11 . 11 . 48,85			48,56					11 . 12 . 48,49	σ Leonis.
11 . 22 . 56,89			56,61					11 . 23 . 56,55	☽ 1 L.
11 , 36 . 33,93			33,64					11 . 37 . 33,59	ν Virginis.
11 . 41 . 17,42			17,15					11 . 42 . 17,10	β Virginis.
12 . 3 . 41,08			39,03					12 . 4 . 39,00	A.S.C. 1404.
12 . 10 . 2,14			1,94					12 . 11 . 1,92	H Virginis.

Error of Collimation = + 0″,61. From May 1 = − 0″,97.

Level Error = − 3″,97. From May 1 = − 5″,37.

The six sets of three consecutive transits of Polaris May 1—4, give for Meridian Error 1″,35, 0″,99, 0″,92, 1″,00, 0″,76 and 0″,76. The first is used from May 1, the mean of the three next from Polaris May 2, and the two last from Venus May 3.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
May 4	Polaris SP.	34.34,6	42.58,5	51. 7,8	59.19,7	7.38,4	16. 4,3	13 . 24 . 18,2		B.
	Arcturus	36,1	50,2	5,0	19,2	33,2	47,4	14 . 8 . 2,0		B.
	A.S.C. 1633	52,9	7,8	22,1	37,2	51,8	6,7	14 . 15 . 21,1		B.
	11 Hydræ Con.	15,7	30,4	44,2	0,5	15,2	30,2	14 . 37 . 45,1		B.
	α^2 Libræ	15,9	29,9	43,8	58,0	11,7	25,5	14 . 41 . 39,4		B.
	α Coronæ Borealis	7,0	22,1	37,0	52,5	7,7	22,7	15 . 27 . 37,8		B.
	Saturn 1 L. } (unsteady)	54,0	......	22,2	......	50,3	......	15 . 38 . 18,4	+ 0,02	B.
	Saturn 2 L. }	......	11,3	......	39,6	......	7,5	15 . 38	− 0,02	B.
	Venus 2 L.	21,8	35,1	48,5	2,4	15,4	28,9	23 . 55 . 42,6		B.
	α Andromedæ.	15,1	30,4	45,8	1,3	16,3	31,4	23 . 59 . 46,6		B.
	Polaris	35. 2,7	43.21,8	51.38,6	0. 1,4	8.11,3	16.23,5	1 . 24 . 39,2		B.
May 5	(a) ☉ 1 L.	20,1	34,0	48,3	2,7	16,2	30,4	2 . 46 . 44,7		B.
	☉ 2 L.	33,2	47,0	1,1	15,3	29,3	43,2	2 . 48 . 57,2		B.
	Castor	27,1	43,0	59,1	15,1	30,8	46,6	7 . 24 . 2,9		B.
	Procyon	8,1	21,8	35,1	48,8	2,3	15,7	7 . 30 . 29,1		B.
	Pollux.	37,4	53,0	8,2	23,8	38,8	54,1	7 . 35 . 9,4		B.
	Regulus	3,5	17,1	31,1	44,9	58,7	12,3	9 . 59 . 26,2		B.
	Jupiter 1 L. } (unsteady)	1,3	......	28,8	......	56,1	......	10 . 43 . 23,1	+ 0,02	B.
	Jupiter 2 L. }	......	18,0	......	45,6	......	12,7	10 . 43	− 0,02	B.
	ν Virginis	51,9	5,6	19,1	33,0	46,2	0,1	11 . 37 . 13,4		B.
	β Virginis	36,1	49,4	2,9	16,8	29,9	43,2	11 . 41 . 56,9		B.
	☽ 1 L. (cloudy)	20,9	34,7	48,1	2,2	15,9	29,8	12 . 6 . 43,1		B.
	γ Virginis.	47,9	1,2	14,9	28,3	41,8	55,1	12 . 33 . 8,7		B.
May 6	α Andromedæ	12,9	28,1	43,2	58,8	14,0	29,0	23 . 59 . 44,1		B.
	Venus 2 L.	15,6	28,9	42,6	56,1	9,7	22,9	0 . 2 . 36,3		B.
	Polaris	35. 2,5	43.18,7	51.37,4	59.54,6	8. 8,3	16.24,8	1 . 24 . 36,2		B.
May 7	☉ 1 L. } (much motion)	0,2	14,7	28,4	43,0	56,9	11,0	2 . 54 . 24,8		B.
	☉ 2 L. }	13,9	27,4	42,1	56,1	10,2	24,0	2 . 56 . 38,1		B.
	Castor	24,9	40,6	56,4	12,7	28,3	44,2	7 . 24 . 0,0		B.
	Procyon	5,5	19,0	32,7	46,3	59,9	13,2	7 . 30 . 26,4		B.
	Pollux.	35,0	50,3	5,8	21,1	36,1	51,4	7 . 35 . 6,7		B.
	α Hydræ	54,0	7,7	21,4	35,1	48,7	2,1	9 . 19 . 16,0		B.
	Regulus	1,1	14,8	28,6	42,3	56,1	10,1	9 . 59 . 23,6		B.
	Jupiter 1 L.	0,1	......	27,1	......	54,2	......	10 . 43 . 21,4	+ 0,02	B.
	Jupiter 2 L.	......	16,1	......	43,6	......	11,0	10 . 43	− 0,02	B.
	β Leonis	4,4	18,2	32,1	46,2	0,1	14,2	11 . 40 . 28,1		B.
	(b) Polaris SP.	34.36,5	42.50,2	51. 1,7	......	7.36,8	......	13 . 24 . 16,6	+ 3 . 17,59	B.
	θ Virginis.	51,9	5,4	18,9	32,3	46,1	59,5	13 . 1 . 13,1		B.
	☽ 1 L.	56,1	10,2	24,1	38,2	52,3	6,2	13 . 35 . 20,1		B.
	λ Virginis.	38,2	52,0	6,1	19,9	33,6	47,1	14 . 10 . 1,1		B.
	A.S.C. 1633	48,8	3,6	18,0	33,6	48,2	3,1	14 . 15 . 17,4		B.
	(c) 10 Hydræ Con.	52,4	7,2	21,2	37,1	51,8	6,2	14 . 36 . 21,1		B.
	α^2 Libræ	12,1	26,3	40,2	54,1	8,2	22,1	14 . 41 . 36,1		B.
	(d) A.S.C. 1690.	16,6	31,1	45,5	59,8	14,2	28,1	14 . 47 . 43,1		B.
	A.S.C. 1709	3,6	18,2	32,2	47,0	2,1	16,3	14 . 56 . 30,6		B.
	A.S.C. 1752	18,2	32,2	46,1	0,3	14,2	28,3	15 . 20 . 42,1		B.
	α Coronæ Borealis	3,7	18,8	33,8	49,2	4,3	19,0	15 . 27 . 34,2		B.
	Saturn 1 L.	57,2	......	25,7	......	53,7	......	15 . 37 . 21,8	+ 0,02	B.
	Saturn 2 L.	......	14,5	......	43,3	......	11,4	15 . 37	− 0,02	B.
	α Andromedæ	11,7	26,7	42,1	57,5	12,9	27,7	23 . 59 . 43,1		B.
	Venus 2 L.	44,9	58,4	12,1	25,5	39,1	52,4	0 . 6 . 5,8		B.
	Polaris	34.58,5	43.17,7	51.37,4	59.54,8	8. 7,2	16.20,6	1 . 24 . 36,3		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*.
The Transit levelled May 9, 1^h.

(*a*) Cloudy, unsteady, and wind loud.
(*b*) Circumstances altogether unfavorable.

(*c*) Observed for 11 Hydræ Con. The Æ as observed has been diminished 1^m, and thus agrees with that of 10 Hydræ Con.
(*d*) Double star: largest observed. So on May 10 and 11.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	
12 . 59 . 25,93	38,54	+ 0,76	39,73	39,51	59,78	1,30	59,32	1. 0 . 39,75	Polaris SP.
14. 7 . 19,02			18,66	18,68	60,02			14. 8 . 18,74	Arcturus.
14 . 14 . 37,09			36,98					14 . 15 . 37,07	A.S.C. 1633.
14 . 37. 0,18			0,05					14 . 38. 0,16	11 Hydræ Con.
14 . 40 . 57,74			57,58	57,79	60,21			14 . 41 . 57,69	α^2 Libræ.
15 . 26 . 52,40			51,98	52,14	60,16			15 . 27 . 52,14	α Coronæ Bor.
15 . 37 . 36,24			37,70					15 . 38 . 37,86	Saturn's center.
15 . 37 . 39,45									
23 . 55. 2,10			1,86			1,22	59,35	23 . 56. 2,43	Venus 2 L.
23 . 59. 0,98			0,56	1,06	60,50			0. 0. 1,13	α Andromedæ.
0 . 59 . 54,07	41,02		39,91	39,71	59,80		60,57	1. 0 . 40,53	Polaris.
2 . 46. 2,34			8,43					2 . 48. 9,14	☉'s center.
2 . 48 . 15,19									
7 . 23 . 14,94			14,48	15,66	61,18			7 . 24 . 15,43	Castor.
7 . 29 . 48,70			48,42	49,32	60,90			7 . 30 . 49,37	Procyon.
7 . 34 . 23,53			23,10	24,03	60,93			7 . 35 . 24,06	Pollux.
9 . 58 . 44,83			44,51	45,51	61,00			9 . 59 . 45,59	Regulus.
10 . 42 . 42,34			43,58					10 . 43 . 44,69	Jupiter's center.
10 . 42 . 45,41									
11 . 36 . 32,76			32,47					11 . 37 . 33,63	ν Virginis.
11 . 41 . 16,46			16,19					11 . 42 . 17,35	β Virginis.
12. 6. 2,10			1,86					12. 7. 3,05	☽ 1 L.
12 . 32 . 28,27			28,03					12 . 33 . 29,24	γ Virginis.
23 . 58 . 58,59		+ 1,12	58,17	1,12	62,95	1,24	61,74	0. 0. 1,15	α Andromedæ.
0. 1 . 56,01			55,78				62,98	0. 2 . 58,76	Venus 2 L.
0 . 59 . 51,79	38,58		36,95	40,64	63,69			1. 0 . 39,98	Polaris.
2 . 53 . 42,71			49,01					2 . 55 . 52,14	☉'s center.
2 . 55 . 55,97									
7 . 23 . 12,44			11,99	15,63	63,64			7 . 24 . 15,35	Castor.
7 . 29 . 46,14			45,87	49,29	63,42			7 . 30 . 49,24	Procyon.
7 . 34 . 20,91			20,49	24,00	63,51			7 . 35 . 23,86	Pollux.
9 . 18 . 35,00			34,81	38,31	63,50			9 . 19 . 38,27	α Hydræ.
9 . 58 . 42,37			42,06	45,49	63,43			9 . 59 . 45,56	Regulus.
10 . 42 . 40,72			41,85					10 . 43 . 45,38	Jupiter's center.
10 . 42 . 43,55									
11 . 39 . 46,19			45,86	49,26	63,40			11 . 40 . 49,44	β Leonis.
12 . 59 . 21,95	34,72		36,47	40,90	64,43			1. 0 . 40,12	Polaris SP.
13. 0 . 32,45			32,24					13. 1 . 35,89	θ Virginis.
13 . 34 . 38,18			38,02					13 . 35 . 41,70	☽ 1 L.
14. 9 . 19,72			19,56					14 . 10 . 23,27	λ Virginis.
14 . 14 . 33,24			33,16					14 . 15 . 36,87	A.S.C. 1633.
14 . 35 . 36,72			36,65					14 . 36 . 40,38	10 Hydræ Con.
14 . 40 . 54,16			54,06	57,81	63,75			14 . 41 . 57,80	α^2 Libræ.
14 . 46 . 59,78			59,68					14 . 48. 3,42	A.S.C. 1690.
14 . 55 . 47,15			47,06					14 . 56 . 50,81	A.S.C. 1709.
15 . 20. 0,20			0,06					15 . 21. 3,83	A.S.C. 1752.
15 . 26 . 49,00			48,60	52,18	63,58			15 . 27 . 52,38	α Coronæ Bor.
15 . 36 . 39,62			41,20					15 . 37 . 44,99	Saturn's center.
15 . 36 . 43,05									
23 . 58 . 57,39		+ 1,32	56,98	1,14	64,16	1,28	62,94	0. 0. 1,20	α Andromedæ.
0. 5 . 25,46			25,24				64,22	0. 6 . 29,46	Venus 2 L.
0 . 59 . 50,36	37,15		35,23	41,17	65,94			1. 0 . 39,50	Polaris.

Error of Collimation = − 0″,97.
Level Error = − 5″,37. From May 6 = − 5″,45.
The three sets of three consecutive transits of Polaris May 6—8 give for Meridian Error 1″,04, 1″,20, 1″,43. The means of the two first and two last are used.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
May 8	☉ 1 L.	51,3	5,4	19,3	33,7	47,8	1,6	2 . 58 . 15,9		B.
	☉ 2 L.	4,7	18,7	32,8	47,0	1,3	15,1	3 . 0 . 29,1		B.
	Castor	23,5	39,4	55,5	11,6	27,0	43,1	7 . 23 . 58,9		B.
	Procyon	4,2	17,6	31,3	45,1	58,7	12,1	7 . 30 . 25,4		B.
	Pollux	24,1	48,9	4,4	19,7	34,8	50,1	7 . 35 . 5,4		B.
	(*a*) Jupiter 1 L.	......	......	......	......	54,2	......	10 . 43 . 21,3	– 27,25	B.
	Jupiter 2 L.	......	......	......	44,1	......	10,8	10 . 43	– 13,71	B.
	β Leonis	3,3	17,1	30,8	44,9	58,8	13,0	11 . 40 . 26,9		B.
	Polaris SP.	34.33,8	42.51,5	50.59,8	......	7.35,3	......	13 . 24 . 9,7	+ 3 . 17,58	B.
	θ Virginis	50,6	4,1	17,7	31,4	44,9	58,2	13 . 1 . 11,7		B.
	Spica	56,1	9,8	23,8	37,4	51,1	4,5	13 . 16 . 18,0		B.
	λ Virginis	37,0	50,7	5,1	18,8	32,2	46,0	14 . 9 . 59,3		B.
	A.S.C. 1633	47,9	2,5	17,2	32,1	46,8	1,4	14 . 15 . 16,3		B.
	☽ 1 L.	42,0	56,4	11,0	25,5	40,0	54,1	14 . 23 . 8,7		B.
	11 Hydræ Con.	11,1	25,8	40,7	55,4	10,2	24,9	14 . 37 . 39,7		B.
	α^2 Libræ	11,1	24,7	38,9	52,8	7,1	20,7	14 . 41 . 34,4		B.
	20 Libræ	49,1	3,9	18,7	33,4	48,2	3,1	14 . 54 . 17,7		B.
	A.S.C. 1752	17,1	30,9	44,7	59,3	12,8	27,3	15 . 20 . 41,4		B.
	α Coronæ Borealis	1,9	17,2	32,3	48,1	2,9	17,8	15 . 27 . 33,0		B.
	Saturn 1 L.	38,1	......	6,1	......	34,3	......	15 . 37 . 2,4	+ 0,02	B.
	Saturn 2 L.	......	55,4	......	23,7	......	51,9	15 . 36	– 0,02	B.
	Venus 2 L. (unsteady)	16,2	29,6	43,1	56,7	10,3	23,6	0 . 9 . 36,8		B.
	Polaris	34.57,3	43.17,5	51.32,7	59.54,4	8. 7,8	16.18,6	1 . 24 . 37,7		B.
May 9	(*b*) ☉ 1 L.	42,6	56,3	11,2	25,4	39,5	53,3	3 . 2 . 7,6		B.
	☉ 2 L.	56,4	10,3	25,1	39,2	53,1	7,2	3 . 4 . 21,4		B.
	Castor (faint and unsteady)	22,2	38,1	54,1	10,0	26,0	41,6	7 . 23 . 57,5		B.
	Procyon	3,2	16,7	30,1	44,0	57,3	10,6	7 . 30 . 24,1		B.
	Pollux	32,7	47,9	3,4	18,9	33,8	48,9	7 . 35 . 4,3		B.
	α Hydræ	51,3	5,0	18,7	32,4	46,1	59,4	9 . 19 . 13,1		B.
	ε Bootis	5,9	21,1	36,2	51,4	6,7	21,5	14 . 37 . 36,8		B.
	α^2 Libræ	10,1	23,7	37,9	52,2	5,9	19,4	14 . 41 . 33,3		B.
	☽ 2 L. (cloudy)	25,1	40,0	55,0	10,1	24,9	39,9	15 . 16 . 54,5		B.
	α Coronæ Borealis	1,1	15,7	30,9	46,4	1,5	16,4	15 . 27 . 31,4		B.
	Venus 2 L. (dancing)	48,7	2,1	15,5	29,3	43,7	56,2	0 . 13 . 9,8		B.
May 10	☉ 1 L. (great motion)	34,6	49,2	3,2	17,7	31,5	45,4	3 . 5 . 59,6		B.
	☉ 2 L.	48,7	3,1	17,0	31,3	45,2	59,3	3 . 8 . 13,5		B.
	Castor	20,9	37,1	53,1	9,0	25,0	40,5	7 . 23 . 56,3		B.
	Procyon	1,9	15,4	28,9	42,5	55,9	9,6	7 . 30 . 23,1		B.
	Pollux	31,3	46,7	2,1	17,3	32,9	48,1	7 . 35 . 3,0		B.
	Regulus	56,9	11,1	24,8	38,7	52,3	6,2	9 . 59 . 19,9		B.
	Jupiter 1 L.	2,1	......	29,8	......	57,0	......	10 . 43 . 24,0	+ 0,02	B.
	Jupiter 2 L.	......	18,7	......	46,2	......	13,3	10 . 43	– 0,02	B.
	w Comæ Beren.	27,4	42,7	58,4	14,1	29,1	44,3	13 . 3 . 59,8		B.
	61 Virginis	8,8	22,8	37,1	51,2	5,1	19,1	13 . 9 . 33,1		B.
	Spica	54,2	7,5	21,1	34,9	48,4	2,2	13 . 16 . 15,7		B.
	3 Bootis	22,0	36,8	52,1	7,3	22,1	37,0	13 . 38 . 52,1		B.
	Arcturus	28,7	43,2	57,3	12,2	26,3	40,5	14 . 7 . 54,6		B.
	A.S.C. 1633	45,4	0,5	15,0	29,8	44,5	58,9	14 . 15 . 14,1		B.
	11 Hydræ Con.	8,7	23,0	38,3	53,1	7,9	22,9	14 . 37 . 37,4		B.
	α^2 Libræ	8,8	22,4	36,7	51,2	4,5	18,7	14 . 41 . 32,2		B.
	A.S.C. 1690	13,1	27,0	42,0	56,2	10,4	24,9	14 . 47 . 39,1		B.
	20 Libræ	46,7	1,5	16,3	31,4	46,1	0,7	14 . 54 . 15,4		B.
	A.S.C. 1769	56,3	11,2	26,1	41,3	56,1	11,1	15 . 27 . 25,9		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*.

(*a*) Hurried.

(*b*) Very great motion.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0ʰ.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
2 . 57 . 33,57		+ 1,32	39,94			1,28	64,22	2 . 59 . 44,32	☉'s center.
2 . 59 . 46,96									
7 . 23 . 11,28			10,84	15,62	64,78			7 . 24 . 15,45	Castor.
7 . 29 . 44,91			44,65	49,28	64,63			7 . 30 . 49,27	Procyon.
7 . 34 . 19,63			19,22	23,99	64,77			7 . 35 . 23,84	Pollux.
10 . 42 . 40,50			41,84					10 . 43 . 46,63	Jupiter's center.
10 . 42 . 43,74									
11 . 39 . 44,97			44,65	49,25	64,60			11 . 40 . 49,49	β Leonis.
12 . 59 . 19,60	32,37		34,43	41,45	67,02			1 . 0 . 39,34	Polaris SP.
13 . 0 . 31,23			31,04					13 . 1 . 35,95	θ Virginis.
13 . 15 . 37,24			37,08	41,92	64,84			13 . 16 . 42,01	Spica.
14 . 9 . 18,45			18,30					14 . 10 . 23,28	λ Virginis.
14 . 14 . 32,03			31,96					14 . 15 . 36,94	A.S.C. 1633.
14 . 22 . 25,39			25,28					14 . 23 . 30,27	☽ 1 L.
14 . 36 . 55,40			55,34					14 . 38 . 0,34	11 Hydræ Con.
14 . 40 . 52,81			52,67	57,82	65,15			14 . 41 . 57,68	α^2 Libræ.
14 . 53 . 33,44			33,38					14 . 54 . 38,40	20 Libræ.
15 . 19 . 59,08			58,96					15 . 21 . 4,00	A.S.C. 1752.
15 . 26 . 47,60			47,20	52,19	64,99			15 . 27 . 52,24	α Coronæ Bor.
15 . 36 . 20,24			21,82					15 . 37 . 26,87	Saturn's center.
15 . 36 . 23,65									
0 . 8 . 56,62			56,40			1,19	65,57	0 . 10 . 1,98	Venus 2 L.
0 . 59 . 49,43	36,22		34,30	41,73	67,43			1 . 0 . 39,92	Polaris.
3 . 1 . 25,13			31,71					3 . 3 . 37,43	☉'s center.
3 . 3 . 38,96									
7 . 23 . 9,92			9,48	15,61	66,13			7 . 24 . 15,42	Castor.
7 . 29 . 43,71			43,45	49,27	65,82			7 . 30 . 49,39	Procyon.
7 . 34 . 18,56			18,15	23,98	65,83			7 . 35 . 24,10	Pollux.
9 . 18 . 32,28			32,10	38,29	66,19			9 . 19 . 38,13	α Hydræ.
14 . 36 . 51,37			50,96	57,15	66,19			14 . 37 . 57,25	ϵ Bootis.
14 . 40 . 51,78			51,64	57,83	66,19			14 . 41 . 57,94	α^2 Libræ.
15 . 16 . 9,92			9,83					15 . 17 . 16,16	☽ 2 L.
15 . 26 . 46,20			45,80	52,20	66,40			15 . 27 . 52,13	α Coronæ Bor.
0 . 12 . 29,33			29,11			1,20	66,63	0 . 13 . 35,75	Venus 2 L.
3 . 5 . 17,32			23,90					3 . 7 . 30,68	☉'s center.
3 . 7 . 31,15									
7 . 23 . 8,85			8,41	15,59	67,18			7 . 24 . 15,41	Castor.
7 . 29 . 42,47			42,21	49,26	67,05			7 . 30 . 49,21	Procyon.
7 . 34 . 17,35			16,94	23,96	67,02			7 . 35 . 23,95	Pollux.
9 . 58 . 38,56			38,26	45,45	67,19			9 . 59 . 45,39	Regulus.
10 . 42 . 43,24			44,37					10 . 43 . 51,53	Jupiter's center.
10 . 42 . 46,05									
13 . 3 . 13,68			13,27					13 . 4 . 20,55	*w* Comæ Beren.
13 . 8 . 51,02			50,90					13 . 9 . 58,19	61 Virginis.
13 . 15 . 34,86			34,70	41,92	67,22			13 . 16 . 41,99	Spica.
13 . 38 . 7,06			6,66					13 . 39 . 13,97	3 Bootis.
14 . 7 . 11,83			11,48	18,71	67,23			14 . 8 . 18,81	Arcturus.
14 . 14 . 29,75			29,68					14 . 15 . 37,02	A.S.C. 1633.
14 . 36 . 53,04			52,98					14 . 38 . 0,34	11 Hydræ Con.
14 . 40 . 50,64			50,50	57,84	67,34			14 . 41 . 57,86	α^2 Libræ.
14 . 46 . 56,10			56,01					14 . 48 . 3,38	A.S.C. 1690.
14 . 53 . 31,15			31,09					14 . 54 . 38,47	20 Libræ.
15 . 26 . 41,14			41,09					15 . 27 . 48,49	A.S.C. 1769.

Error of Collimation $= -0'',97$.

Level Error $= -5'',45$.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
May 10	χ Libræ..............	53,7	8,7	23,3	38,0	52,9	7,2	15 . 30 . 22,1		B.
	Saturn 1 L...........	0,1	......	28,1	......	56,1	......	15 . 36 . 24,3	+ 0,02	B.
	Saturn 2 L...........	......	17,5	......	45,8	......	13,5	15 . 36	– 0,02	B.
	δ Scorpii............	57,1	11,9	26,3	40,9	55,4	10,2	15 . 50 . 24,3		B.
	δ Ophiuchi...........	6,1	19,6	33,2	46,5	0,3	13,8	16 . 5 . 27,2		B.
	☽ 2 L...............	14,0	29,2	45,0	0,2	15,6	31,1	16 . 12 . 46,3		B.
	τ Scorpii	57,7	13,2	28,5	43,8	58,9	14,2	16 . 25 . 29,1		B.
	25 Scorpii............	7,1	21,8	36,8	51,7	6,7	21,1	16 . 36 . 36,0		B.
	Venus 2 L.	22,7	35,9	49,7	3,3	16,8	30,4	0 . 16 . 43,7		B.
May 11	⊙ 1 L.} ...... (motion)	27,6	41,8	56,1	10,2	24,3	38,3	3 . 9 . 52,4		B.
	⊙ 2 L.}	41,3	55,6	10,1	24,2	38,1	52,5	3 . 12 . 6,7		B.
	Castor...............	19,8	35,8	51,1	7,7	23,4	39,4	7 . 23 . 55,1		B.
	Procyon..............	0,6	14,2	27,7	41,3	54,8	8,2	7 . 30 . 21,7		B.
	Pollux	29,9	45,7	0,9	16,3	31,4	46,4	7 . 35 . 1,7		B.
	Regulus..............	56,0	9,7	23,7	37,4	51,1	5,0	9 . 59 . 18,6		B.
	Jupiter 1 L...........	4,4	......	31,9	......	59,1	......	10 . 43 . 26,2	+ 0,02	B.
	Jupiter 2 L...........	......	20,7	......	48,4	......	15,4	10 . 43	– 0,02	B.
	f Canum Venat.......	13,3	30,0	46,7	3,9	20,4	37,2	12 . 57 . 53,8		B.
	w Comæ Beren	26,3	42,1	57,1	12,6	27,7	43,2	13 . 3 . 58,3		B.
	61 Virginis...........	7,4	21,2	36,0	50,0	4,1	18,1	13 . 9 . 32,0		B.
	Spica................	52,3	6,0	19,7	33,4	47,2	0,8	13 . 16 . 14,2		B.
	3 Bootis..............	20,8	35,5	50,8	6,1	20,9	35,7	13 . 38 . 51,1		B.
	Arcturus ...... (flashing)	27,6	41,7	56,4	10,9	25,3	39,2	14 . 7 . 53,3		B.
	11 Hydræ Con.......	7,2	22,0	37,0	52,0	7,1	21,4	14 . 37 . 36,3		B.
	α^2 Libræ............	7,4	21,2	35,1	49,2	3,3	17,2	14 . 41 . 31,0		B.
	A.S.C. 1690..........	11,8	26,1	40,4	55,1	9,3	23,7	14 . 47 . 38,0		B.
	A.S.C. 1769..........	55,1	9,9	25,2	40,2	54,5	9,9	15 . 27 . 24,8		B.
	Saturn 1 L...........	40,7	......	9,0	......	37,0	......	15 . 36 . 5,0	+ 0,02	B.
	Saturn 2 L...........	......	58,1	......	26,4	......	54,1	15 . 35	– 0,02	B.
	A.S.C. 1848..........	16,4	22,1	37,3	52,8	8,0	23,1	16 . 0 . 38,7		B.
	δ Ophiuchi...........	5,1	18,5	32,1	45,6	59,0	12,4	16 . 5 . 25,9		B.
	Antares........ (fleming)	37,7	52,7	8,1	23,2	37,8	52,6	16 . 19 . 7,9		B.
	τ Scorpii	56,1	11,8	27,1	42,2	57,1	12,7	16 . 25 . 27,6		B.
	25 Scorpii............	5,9	20,8	35,3	50,3	5,2	20,1	16 . 36 . 35,0		B.
	α Herculis............	27,6	41,4	56,0	9,4	23,2	37,1	17 . 6 . 50,9		B.
	☽ 2 L................	9,1	25,0	41,0	56,8	12,5	28,2	17 . 12 . 43,8		B.
	α Ophiuchi...........	37,2	50,9	4,9	19,0	32,3	46,2	17 . 26 . 59,9		B.
	3 Sagittarii...........	30,2	45,0	0,3	16,2	30,7	46,2	17 . 37 . 1,1		B.
	γ^2 Sagittarii..........	31,1	46,3	2,1	17,8	33,1	48,9	17 . 55 . 4,4		B.
	(*a*) Venus 2 L.	57,7	11,5	24,9	38,9	52,4	5,9	0 . 20 . 19,3		B.
May 12	⊙ 1 L...............	20,8	34,9	49,2	3,6	17,8	31,7	3 . 13 . 45,9		B.
	⊙ 2 L...............	34,4	49,0	3,2	17,5	31,7	46,0	3 . 16 . 0,1		B.
	Castor...............	18,7	34,4	50,6	6,7	22,3	38,1	7 . 24 . 53,7		B.
	Procyon..............	59,2	12,8	26,4	40,1	53,4	7,0	7 . 31 . 20,4		B.
	Pollux	29,0	44,1	59,6	15,1	30,1	45,4	7 . 35 . 0,6		B.
	Regulus..............	54,6	8,4	22,2	36,1	50,0	3,7	10 . 0 . 17,3		B.
	Jupiter 1 L	7,2	......	34,5	......	2,0	......	10 . 44 . 29,0	+ 0,02	B.
	Jupiter 2 L...........	......	23,6	......	51,2	......	18,3	10 . 44	– 0,02	B.
	f Canum Venat	12,2	28,7	45,9	2,8	19,2	36,1	12 . 58 . 52,7		B.
	w Comæ Beren........	25,3	40,7	55,9	11,7	26,5	42,1	13 . 4 . 57,1		B.
	Spica......... (Temp. 52°)	51,2	5,1	18,8	32,2	46,2	59,5	13 . 17 . 13,3		B.
	3 Bootis..............	19,4	34,7	49,5	4,9	19,5	34,7	13 . 39 . 49,6		B.
	(*b*) ϵ Bootis..............	1,8	17,1	32,2	47,7	3,1	17,9	14 . 38 . 33,1		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*. After Venus May 11 the clock was put forward 1^m.

(*a*) Ill-shapen and very unsteady.

(*b*) Hazy and very faint.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	
15.29.37,99		+ 1,32	37,91			1,20	66,63	15.30.45,31	χ Libræ.
15.35.42,17 15.35.45,58			} 43,76					15.36.51,17	Saturn's center.
15.49.40,87			40,78					15.50.48,20	δ Scorpii.
16. 4.46,67			46,37	53,78	67,41			16. 5.53,80	δ Ophiuchi.
16.12. 0,20			0,15					16.13. 7,59	☽ 2 L.
16.24.43,63			43,59					16.25.51,04	τ Scorpii.
16.35.51,60			51,54					16.36.59,00	25 Scorpii.
0.16. 3,21			2,98			1,28	67,90	0.17.10,89	Venus 2 L.
3. 9.10,10 3.11.24,07			} 16,75					3.11.24,82	⊙'s center.
7.23. 7,47			7,03	15,58	68,55			7.24.15,32	Castor.
7.29.41,21			40,95	49,25	68,30			7.30.49,25	Procyon.
7.34.16,04			15,63	23,95	68,32			7.35.23,93	Pollux.
9.58.37,36			37,06	45,44	68,38			9.59.45,49	Regulus.
10.42.45,42 10.42.48,15			} 46,51					10.43.54,98	Jupiter's center.
12.57. 3,61			3,12					12.58.11,71	*f* Canum Venat.
13. 3.12,47			12,06					13. 4.20,66	*w* Comæ Beren.
13. 8.49,82			49,70					13. 9.58,30	61 Virginis.
13.15.33,37			33,21	41,92	68,71			13.16.41,82	Spica.
13.38. 5,85			5,45					13.39.14,08	3 Bootis.
14. 7.10,62			10,27	18,71	68,44			14. 8.18,92	Arcturus.
14.36.51,85			51,79					14.38. 0,47	11 Hydræ Con.
14.40.49,20			49,06	57,85	68,79			14.41.57,74	α^2 Libræ.
14.46.54,91			54,82					14.48. 3,51	A.S.C. 1690.
15.26.39,95			39,90					15.27.48,62	A.S.C. 1769.
15.35.22,94 15.35.26,18			} 24,44					15.36.33,17	Saturn's center.
15.59.52,63			52,59					16. 1. 1,34	A.S.C. 1848.
16. 4.45,51			45,21	53,80	68,59			16. 5.53,97	δ Ophiuchi.
16.18.22,85			22,80	31,57	68,77			16.19.31,57	Antares.
16.24.42,08			42,04					16.25.50,82	τ Scorpii.
16.35.50,37			50,31					16.36.59,10	25 Scorpii.
17. 6. 9,38			9,07	17,86	68,79			17. 7.17,88	α Herculis.
17.11.56,63			56,59					17.13. 5,41	☽ 2 L.
17.26.18,63			18,33	27,02	68,69			17.27.27,16	α Ophiuchi.
17.36.15,67			15,63					17.37.24,47	3 Sagittarii.
17.54.17,67			17,64					17.55.26,50	γ^2 Sagittarii.
0.19.38,66			38,43			1,26	69,17	0.20.47,62	Venus 2 L.
3.13. 3,41 3.15.17,42			} 10,08				9,17	3.14.19,42	⊙'s center.
7.24. 6,36			5,92	15,57	9,65			7.24.15,48	Castor.
7.30.39,90			39,64	49,24	9,60			7.30.49,20	Procyon.
7.34.14,84			14,43	23,94	9,51			7.34.24,00	Pollux.
9.59.36,04			35,74	45,43	9,69			9.59.45,43	Regulus.
10.43.48,19 10.43.51,01			} 49,32					10.43.59,05	Jupiter's center.
12.58. 2,51			2,02					12.58.11,87	*f* Canum Venat.
13. 4.11,33			10,92					13. 4.20,78	*w* Comæ Beren.
13.16.32,33			32,17	41,92	9,75			13.16.42,04	Spica.
13.39. 4,61			4,21					13.39.14,10	3 Bootis.
14.37.47,56			47,15	57,16	10,01			14.37.57,09	ε Bootis.

Error of Collimation = – 0″,97.

Level Error = – 5″,45.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
May 12	α^2 Libræ	6,1	20,2	34,1	47,9	2,3	15,9	14 . 42 . 30,1		B.
	A.S.C. 1698	49,1	2,9	17,2	31,5	45,1	59,1	14 . 50 . 13,3		B.
										B.
May 14	Arcturus (blazing)	23,9	37,8	52,2	7,1	20,8	35,3	14 . 8 . 49,4		B.
	ϵ Bootis	59,3	14,4	30,2	45,2	0,3	15,5	14 . 38 . 30,8		B.
	α^2 Libræ	3,9	17,8	31,9	45,9	59,4	13,5	14 . 42 . 27,3		B.
	1 Serpentis	24,8	38,4	51,8	5,5	19,1	32,3	14 . 49 . 45,7		B.
	A.S.C. 1769	51,3	6,5	21,1	36,4	51,2	6,2	15 . 28 . 21,1		B.
	Saturn 1 L.	42,6	......	11,0	......	39,1	......	15 . 36 . 7,0	+ 0,02	B.
	Saturn 2 L.	......	59,6	......	28,3	......	56,2	15 . 35	− 0,02	B.
	Venus 2 L.	52,4	6,7	19,9	33,6	46,9	0,4	0 . 32 . 13,7		B.
May 15	⊙ 1 L. } (cloudy)	14,1	18,1	32,3	46,9	1,0	15,1	3 . 26 . 29,4		B.
	⊙ 2 L. } (cloudy)	18,1	32,6	47,2	1,3	......	......	3 . 28	+ 21,36	B.
	Procyon	55,8	9,1	22,6	36,4	49,8	3,1	7 . 31 . 16,5		B.
	Pollux	24,8	40,3	55,5	11,1	26,2	41,5	7 . 35 . 56,8		B.
	Jupiter 1 L. } (cloudy & faint)	20,8	......	48,0	......	15,4	......	10 . 44 . 43,1	+ 0,02	B.
	Jupiter 2 L. } (cloudy & faint)	......	37,1	......	4,4	......	31,7	10 . 44	− 0,02	B.
	β Leonis	54,1	8,1	22,1	36,3	49,8	3,9	11 . 41 . 17,8		B.
	61 Virginis	2,6	16,7	30,7	44,6	59,1	12,9	13 . 10 . 26,8		B.
	Spica	47,3	1,1	14,6	28,7	42,2	55,8	13 . 17 . 9,4		B.
	A.S.C. 1673	7,2	21,5	36,1	50,6	4,9	19,2	14 . 38 . 33,5		B.
	α^2 Libræ	2,3	16,2	30,0	44,3	58,2	12,1	14 . 42 . 25,9		B.
	1 Serpentis	23,4	36,9	50,2	3,9	17,3	30,8	14 . 49 . 44,2		B.
	A^1 Serpentis	23,4	37,1	50,7	4,2	17,5	30,8	15 . 28 . 44,2		B.
	Saturn 1 L.	23,1	......	51,4	......	19,6	......	15 . 35 . 47,4	+ 0,02	B.
	Saturn 2 L.	......	40,7	......	8,9	......	36,7	15 . 35	− 0,02	B.
	Venus 2 L.	33,5	47,2	0,7	14,4	27,6	40,9	0 . 35 . 54,6		B.
May 16	⊙ 1 L.	59,2	13,5	28,1	42,3	56,6	10,9	3 . 30 . 25,1		B.
	⊙ 2 L.	14,3	28,7	43,0	57,5	11,8	25,5	3 . 32 . 40,1		B.
	Regulus	49,7	3,3	17,1	31,1	44,6	58,5	10 . 0 . 12,3		B.
	Jupiter 1 L.	25,1	......	52,9	......	20,0	......	10 . 44 . 46,9	+ 0,02	B.
	Jupiter 2 L.	......	41,4	......	9,2	......	36,4	10 . 44	− 0,02	B.
	β Leonis	53,1	6,9	20,9	35,0	48,7	2,8	11 . 41 . 16,8		B.
	α^2 Libræ	1,4	15,3	29,2	43,2	57,0	11,3	14 . 42 . 24,9		B.
	1 Serpentis	22,2	36,1	49,5	3,3	16,5	29,8	14 . 49 . 43,2		B.
	α Coronæ Borealis	52,1	7,3	22,5	37,8	53,0	8,1	15 . 28 . 22,6		B.
	Saturn 1 L.	3,9	......	31,9	......	0,1	......	15 . 35 . 28,2	+ 0,02	B.
	Saturn 2 L.	......	21,3	......	49,4	......	17,4	15 . 35	− 0,02	B.
	☽ 2 L. (cloudy)	28,9	43,3	57,9	12,4	26,3	40,8	22 . 17 . 55,1		B.
	α Pegasi	45,3	59,4	13,5	27,3	41,1	54,8	22 . 57 . 8,7		B.
	Venus 2 L.	16,1	29,5	42,8	56,5	9,8	23,4	0 . 39 . 36,8		B.
	Polaris	35.59,7	44.11,3	52.28,5	0.54,8	9. 6,6	17.20,4	1 . 25 . 35,2		B.
May 17	Jupiter 1 L.	31,4	......	58,9	......	26,1	......	10 . 44 . 53,1	+ 0,02	B.
	Jupiter 2 L.	......	47,7	......	15,5	......	42,3	10 . 44	− 0,02	B.
	β Leonis	51,7	5,8	19,6	33,9	48,0	1,7	11 . 41 . 15,4		B.
	Polaris S.P.	35.28,6	43.41,5	51.52,8	0. 5,7	8.27,3	16.41,6	13 . 24 . 58,2		B.
	Arcturus	20,1	34,3	48,7	3,3	17,5	31,6	14 . 8 . 46,1		B.
	A.S.C. 1673	4,9	19,1	33,7	48,2	2,6	16,9	14 . 38 . 31,2		B.
	α^2 Libræ	59,8	14,0	28,1	42,2	56,1	9,9	14 . 42 . 23,5		B.
	A.S.C. 1698	42,9	57,1	11,1	25,4	39,2	53,1	14 . 50 . 7,3		B.
	α Coronæ Borealis	51,2	6,1	21,4	37,0	52,1	7,0	15 . 28 . 22,1		B.
	α Pegasi	44,3	58,1	12,1	26,1	39,9	53,6	22 . 57 . 7,8		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*.
The Transit levelled May 15, 22^h.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0ʰ.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
14 . 41 . 48,09		+ 1,32	47,95	57,86	9,91	1,26	9,17	14 . 41 . 57,89	α^2 Libræ.
14 . 49 . 31,17			30,84					14 . 49 . 40,79	A.S.C. 1698.
14 . 8 . 6,64		+ 2,20	6,27	18,71	12,44	1,27	11,65	14 . 8 . 18,67	Arcturus.
14 . 37 . 45,10			44,66	57,17	12,51			14 . 37 . 57,08	ε Bootis.
14 . 41 . 45,67			45,57	57,87	12,30			14 . 41 . 57,99	α^2 Libræ.
14 . 49 . 5,37			5,14					14 . 49 . 17,57	1 Serpentis.
15 . 27 . 36,26			36,26					15 . 27 . 48,73	A.S.C. 1769.
15 . 35 . 24,94			26,40					15 . 35 . 38,87	Saturn's center.
15 . 35 . 28,01									
0 . 31 . 33,37			33,14			1,22	12,96	0 . 31 . 46,13	Venus 2 L.
3 . 25 . 46,70			53,58					3 . 27 . 6,71	⊙'s center.
3 . 28 . 1,16									
7 . 30 . 36,19			35,94	49,22	13,28			7 . 30 . 49,28	Procyon.
7 . 35 . 10,88			10,44	23,91	13,47			7 . 35 . 23,79	Pollux.
10 . 44 . 1,84			2,83					10 . 44 . 16,34	Jupiter's center.
10 . 44 . 4,38									
11 . 40 . 36,01			35,68	49,19	13,51			11 . 40 . 49,23	β Leonis.
13 . 9 . 44,77			44,69					13 . 9 . 58,32	61 Virginis.
13 . 16 . 28,45			28,31	41,92	13,61			13 . 16 . 41,94	Spica.
14 . 37 . 50,42			50,37					14 . 38 . 4,07	A.S.C. 1673.
14 . 41 . 44,14			44,04	57,88	13,84			14 . 41 . 57,74	α^2 Libræ.
14 . 49 . 3,81			3,60					14 . 49 . 17,31	1 Serpentis.
15 . 28 . 3,99			3,78					15 . 28 . 17,52	A^1 Serpentis.
15 . 35 . 5,39			6,99					15 . 35 . 20,74	Saturn's center.
15 . 35 . 8,75									
0 . 35 . 14,13			13,90			1,15	14,19	0 . 35 . 28,12	Venus 2 L.
3 . 29 . 42,24			49,41					3 . 31 . 3,77	⊙'s center.
3 . 31 . 57,27									
9 . 59 . 30,94			30,63	45,38	14,75			9 . 59 . 45,30	Regulus.
10 . 44 . 6,24			7,33					10 . 44 . 22,03	Jupiter's center.
10 . 44 . 8,98									
11 . 40 . 34,89			34,56	49,18	14,62			11 . 40 . 49,31	β Leonis.
14 . 41 . 43,18			43,08	57,89	14,81			14 . 41 . 57,97	α^2 Libræ.
14 . 49 . 2,94			2,73					14 . 49 . 17,63	1 Serpentis.
15 . 27 . 37,63			37,20	52,26	15,06			15 . 27 . 52,13	α Coronæ Bor.
15 . 34 . 46,04			47,62					15 . 35 . 2,56	Saturn's center.
15 . 34 . 49,35									
22 . 17 . 12,10			12,00			1,20	14,07	22 . 17 . 27,19	☽ 2 L.
22 . 56 . 27,16			26,84	42,11	15,27			22 : 56 . 42,05	α Pegasi.
0 . 38 . 56,41			56,17				15,27	0 . 39 . 11,47	Venus 2 L.
1 . 0 . 48,07	33,13		29,93	46,05	16,12			1 . 0 . 45,25	Polaris.
10 . 44 . 12,39			13,49					10 . 44 . 29,29	Jupiter's center.
10 . 44 . 15,15									
11 . 40 . 33,73			33,40	49,18	15,78			11 . 40 . 49,25	β Leonis.
13 . 0 . 10,81	25,23		28,66	46,30	17,64			1 . 0 . 44,58	Polaris SP.
14 . 8 . 3,08			2,71	18,71	16,00			14 . 8 . 18,68	Arcturus.
14 . 37 . 48,09			48,04					14 . 38 . 4,04	A.S.C. 1673.
14 . 41 . 41,94			41,84	57,89	16,05			14 . 41 . 57,84	α^2 Libræ.
14 . 49 . 25,16			24,82					14 . 49 . 40,83	A.S.C. 1698.
15 . 27 . 36,70			36,27	52,27	16,00			15 . 27 . 52,31	α Coronæ Bor.
22 . 56 . 25,99			25,67	42,15	16,48	1,31	15,22	22 . 56 . 42,14	α Pegasi.

Error of Collimation = − 0″,97.

Level Error = − 5″,45. From May 14 = − 6″,32.

The two sets of three consecutive transits of Polaris May 16—18, give for Meridian Error 2″,52 and 1″,88. The mean is used from May 14.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
May 17	☽ 2 L.	16,2	30,1	44,1	58,3	12,1	26,0	23 . 11 . 40,0		B.
	Polaris .... (cloudy)	......	......	52.34,7	0.54,4	9. 4,6	......	1 . 25 . 31,3	– 6 . 13,77	B.
May 18	☉ 2 L. . . (cloudy and unsteady)	8,1	22,2	36,3	50,7	5,1	19,2	3 . 40 . 33,4		B.
	Regulus	46,9	0,9	14,6	28,8	42,3	56,1	10 . 0 . 9,8		B.
	Jupiter 1 L.	38,3	......	5,9	......	33,1	......	10 . 45 . 0,1	+ 0,02	B.
	Jupiter 2 L.	......	54,5	......	21,9	......	49,0	10 . 44	– 0,02	B.
	β Leonis ...... (Temp. 47°)	50,4	4,3	18,4	32,5	46,3	0,2	11 . 41 . 14,0		B.
	Polaris SP. . . (great motion)	35.31,3	43.44,5	51.53,8	0. 7,6	8.29,2	16.48,7	13 . 25 . 3,4		B.
	Arcturus	19,1	33,2	47,3	2,2	16,3	30,5	14 . 8 . 44,9		B.
May 22	Jupiter 1 L.	11,8	......	39,2	......	6,8	......	10 . 45 . 34,0	+ 0,02	B.
	Jupiter 2 L.	......	28,1	......	55,7	......	22,5	10 . 45	– 0,02	B.
	β Leonis ...... (Temp. 52°)	45,3	59,2	13,1	27,4	41,1	55,1	11 . 41 . 8,9		B.
	Arcturus	14,1	28,1	42,4	57,1	11,2	25,4	14 . 8 . 39,6		B.
	13 Hydræ Con.	25,1	39,7	55,1	10,2	24,9	40,0	14 . 38 . 54,8		B.
	α^2 Libræ	54,1	8,3	22,4	36,4	50,3	4,0	14 . 42 . 17,3		B.
	A^1 Serpentis	15,1	28,6	42,1	55,6	9,2	22,3	15 . 28 . 35,8		B.
	Saturn 1 L.	7,8	......	35,8	......	4,0	......	15 . 33 . 31,9	+ 0,02	B.
	Saturn 2 L.	......	24,8	......	53,2	......	21,2	15 . 33	– 0,02	B.
May 24	β Leonis	42,9	56,9	11,0	25,1	38,7	52,5	11 . 41 . 6,4		B.
May 26	☉ 1 L. } ...... (tremulous)	46,7	1,8	15,9	30,5	44,9	59,2	4 . 10 . 13,3		B.
	☉ 2 L. }	3,1	17,3	32,1	46,4	1,1	15,4	4 . 12 . 29,6		B.
	(*a*) ☽ 1 L.	26,0	41,4	57,3	13,2	28,9	44,2	6 . 51 . 0,0		B.
	Pollux .... (cloudy)	......	......	......	57,7	12,7	27,9	7 . 35 . 43,1	– 22,96	B.
	Regulus .... (Temp. 54°)	36,7	50,8	4,6	18,7	32,1	45,4	9 . 59 . 59,9		B.
	Arcturus	8,9	23,1	37,4	52,1	6,2	20,2	14 . 8 . 34,5		B.
	13 Hydræ Con.	20,0	35,0	49,9	5,1	19,9	34,9	14 . 38 . 49,4		B.
	α^2 Libræ	49,1	2,8	16,7	30,9	44,6	58,3	14 . 42 . 12,4		B.
	A^1 Serpentis	10,1	23,4	36,9	50,8	4,2	17,7	15 . 28 . 30,4		B.
	Saturn 1 L.	51,1	......	19,2	......	47,2	......	15 . 32 . 15,1	+ 0,02	B.
	Saturn 2 L.	......	8,4	......	36,7	......	4,5	15 . 32	– 0,02	B.
	α Serpentis	12,1	25,6	39,1	53,1	6,4	20,1	15 . 36 . 33,3		B.
	f^1 Scorpii	5,1	19,7	34,6	49,2	4,1	18,5	15 . 44 . 33,2		B.
	α Herculis	9,1	23,1	37,0	51,1	4,9	18,7	17 . 7 . 32,5		B.
	α Ophiuchi	18,2	32,0	46,0	0,1	14,1	27,8	17 . 27 . 41,3		B.
May 27	Procyon	40,6	54,1	7,4	21,1	34,4	47,9	7 . 31 . 1,5		B.
	Pollux	10,1	25,1	40,6	56,2	11,2	26,3	7 . 35 . 41,8		B.
	☽ 1 L. .... (much waving)	18,1	33,2	48,8	4,4	19,7	35,0	7 . 49 . 50,2		B.
May 28	13 Hydræ Con.	17,1	32,2	47,1	2,3	17,2	32,0	14 . 38 . 46,9		B.
	α^2 Libræ	46,1	59,8	14,0	28,2	41,8	55,8	14 . 42 . 10,0		B.
	α Coronæ Borealis	37,2	52,2	7,3	22,7	37,4	52,8	15 . 28 . 8,3		B.
	(*b*) Saturn 1 L.	13,1	......	41,1	......	9,4	......	15 . 31 . 37,3	+ 0,02	B.
	Saturn 2 L.	......	30,3	......	58,4	......	26,3	15 . 31	– 0,02	B.
	α Serpentis	9,7	23,0	36,4	50,2	3,9	17,3	15 . 36 . 31,1		B.
	α Ophiuchi	15,2	29,3	43,2	57,4	11,3	25,1	17 . 27 . 38,8		B.
May 29	☽ 1 L. .... (cloudy)	33,4	47,9	2,4	17,1	31,5	45,9	9 . 35 . 0,4		B.
	Jupiter 1 L.	34,7	......	2,1	......	29,4	......	10 . 46 . 56,8	+ 0,02	B.
	Jupiter 2 L.	......	50,9	......	18,5	......	45,3	10 . 46	– 0,02	B.
	β Leonis	36,2	50,2	4,1	18,3	32,1	46,2	11 . 41 . 0,0		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*. The Transit levelled June 1, 8^h.

(*a*) Very faint and unsteady.

(*b*) Hazy and very ill-defined.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	
23 . 10 . 58,12		+ 2,20	57,97			1,31	15,22	23 . 11 . 14,45	☽ 2 L.
1 . 0 . 47,48	32,54		29,34	46,54	17,20		16,53	1 . 0 . 45,92	Polaris.
3 . 39 . 50,71			50,34					3 . 40 . 7,07	⊙ 2 L.
9 . 59 . 28,49			28,18	45,36	17,18			9 . 59 . 45,25	Regulus.
10 . 44 . 19,37 10 . 44 . 21,78			20,30					10 . 44 . 37,41	Jupiter's center.
11 . 40 . 32,30			31,97	49,17	17,20			11 . 40 . 49,14	β Leonis.
13 . 0 . 14,07	28,49		31,92	46,81	14,89			1 . 0 . 49,16	Polaris SP.
14 . 8 . 1,93			1,56	18,71	17,15			14 . 8 . 18,86	Arcturus.
10 . 44 . 52,97 10 . 44 . 55,41			53,91			1,28	21,43	10 . 45 . 15,91	Jupiter's center.
11 . 40 . 27,16			26,83	49,13	22,30			11 . 40 . 48,88	β Leonis.
14 . 7 . 56,84			56,47	18,71	22,24			14 . 8 . 18,65	Arcturus.
14 . 38 . 9,97			9,97					14 . 38 . 32,18	13 Hydræ Con.
14 . 41 . 36,12			36,02	57,92	21,90			14 . 41 . 58,23	α^2 Libræ.
15 . 27 . 55,53			55,32					15 . 28 . 17,57	A^1 Serpentis.
15 . 32 . 49,89 15 . 32 . 53,05			51,39					15 . 33 . 13,65	Saturn's center.
11 . 40 . 24,79			24,46	49,11	24,65	1,31	24,01	11 . 40 . 49,11	β Leonis.
4 . 9 . 30,32 4 . 11 . 46,43		+ 0,60	37,95			1,38	26,61	4 . 11 . 4,80	⊙'s center.
6 . 50 . 13,00			12,51					6 . 50 . 39,51	☽ 1 L.
7 . 34 . 57,39			56,90	23,83	26,93			7 . 35 . 23,95	Pollux.
9 . 59 . 18,39			18,02	45,27	27,25			9 . 59 . 45,20	Regulus.
14 . 7 . 51,77			51,34	18,70	27,36			14 . 8 . 18,76	Arcturus.
14 . 38 . 4,88			4,76					14 . 38 . 32,21	13 Hydræ Con.
14 . 41 . 30,68			30,48	57,94	27,46			14 . 41 . 57,93	α^2 Libræ.
15 . 27 . 50,50			50,20					15 . 28 . 17,70	A^1 Serpentis.
15 . 31 . 33,17 15 . 31 . 36,51			34,65					15 . 32 . 2,15	Saturn's center.
15 . 35 . 52,81			52,47	19,92	27,45			15 . 36 . 19,97	α Serpentis.
15 . 43 . 49,20			49,06					15 . 44 . 16,57	f^1 Scorpii.
17 . 6 . 50,91			50,52	18,12	27,60			17 . 7 . 18,11	α Herculis.
17 . 26 . 59,92			59,55	27,30	27,75			17 . 27 . 27,16	α Ophiuchi.
7 . 30 . 21,00			20,67	49,14	28,47	1,37	28,02	7 . 30 . 49,12	Procyon.
7 . 34 . 55,90			55,41	23,83	28,42			7 . 35 . 23,86	Pollux.
7 . 49 . 4,20			3,73					7 . 49 . 32,20	☽ 1 L.
14 . 38 . 2,11			1,99			1,27	29,41	14 . 38 . 32,17	13 Hydræ Con.
14 . 41 . 27,96			27,76	57,94	30,18			14 . 41 . 57,95	α^2 Libræ.
15 . 27 . 22,55			22,07	52,33	30,26			15 . 27 . 52,30	α Coronæ Bor.
15 . 30 . 55,24 15 . 30 . 58,31			56,59					15 . 31 . 26,82	Saturn's center.
15 . 35 . 50,22			49,88	19,93	30,05			15 . 36 . 20,12	α Serpentis.
17 . 26 . 57,19			56,82	27,33	30,51			17 . 27 . 27,15	α Ophiuchi.
9 . 34 . 16,95			16,53			1,24	30,66	9 . 34 . 47,68	☽ 1 L.
10 . 46 . 15,77 10 . 46 . 18,21			16,64					10 . 46 . 47,86	Jupiter's center.
11 . 40 . 18,16			17,77	49,07	31,30			11 . 40 . 49,03	β Leonis.

Error of Collimation = $-0'',97$.
Level Error = $-6'',32$. From May 24 = $-6'',31$.
Meridian Error from May 26 by Polaris SP, Polaris, and Polaris SP May 29 and 30.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
May 29	Polaris SP	......	......	......	59.59,8	8.21,3	16.41,6	13 . 24 . 56,7	– 12 . 22,71	B.
	Arcturus	5,2	19,2	33,4	48,0	2,1	16,3	14 . 8 . 30,5		B.
	α^2 Libræ (blur)	44,9	58,3	12,9	27,1	41,0	54,3	14 . 42 . 8,3		B.
	α Coronæ Borealis	35,9	51,1	6,3	21,4	36,3	51,4	15 . 28 . 6,7		B.
	Saturn 1 L.	54,1	......	22,3	......	50,9	......	15 . 31 . 18,7	+ 0,02	B.
	Saturn 2 L.	......	11,7	......	39,6	......	7,5	15 . 31	– 0,02	B.
	α Serpentis	8,2	21,9	35,1	49,0	2,4	16,1	15 . 36 . 29,2		B.
	A.S.C. 1817	14,8	28,9	43,9	58,1	12,1	26,3	15 . 47 . 40,6		B.
	Polaris	35.49,3	44. 5,4	52.23,8	......	8.55,5	17. 7,2	1 . 25 . 21,7	+ 1,09	B.
May 30	Regulus (Temp. 60°)	31,8	45,7	59,2	13,2	27,0	40,6	9 . 59 . 54,2		B.
	γ Leonis	56,9	2,4	16,8	31,1	45,2	59,5	10 . 11 . 14,0		B.
	☽ 1 L.	34,6	48,9	3,1	17,3	31,1	45,1	10 . 21 . 59,2		B.
	β Leonis	34,7	48,9	2,9	17,1	30,8	44,9	11 . 40 . 58,7		B.
	Polaris SP (cloudy)	......	43.38,3	......	59.59,7	8.20,5	16.40,6	13 . 24 . 57,4	– 6 . 36,23	B.
	α^2 Libræ	43,3	57,4	11,7	25,5	39,3	53,1	14 . 42 . 7,1		B.
	δ Ophiuchi	41,3	54,7	8,3	22,1	35,3	48,9	16 . 6 . 2,2		B.
	Antares	14,2	29,2	44,3	59,5	14,4	29,1	16 . 19 . 44,0		B.
	29 Scorpii	54,1	9,1	24,4	39,7	54,4	9,4	17 . 4 . 24,6		B.
	A.S.C. 1979	15,1	29,5	43,9	58,1	12,2	26,2	17 . 10 . 40,0		B.
	α Ophiuchi	13,6	27,1	41,2	55,2	9,2	23,0	17 . 27 . 36,3		B.
June 1	⊙ 1 L. (very cloudy)	3,1	17,8	32,2	47,0	1,2	......	4 . 34	+ 14,53	B.
	⊙ 2 L.	......	......	......	3,1	18,0	32,4	4 . 36 . 47,0	– 21,85	B.
June 2	⊙ 1 L. (very cloudy)	......	......	......	51,2	5,9	20,0	4 . 38 . 34,4	– 21,88	B.
	⊙ 2 L.	24,1	39,0	53,3	8,1	22,5	37,0	4 . 40 . 51,8		B.
	α^2 Libræ	40,1	54,1	7,8	21,9	36,0	49,2	14 . 42 . 3,3		B.
	Saturn 1 L.	40,8	......	8,8	......	37,0	......	15 . 30 . 5,0	+ 0,02	B.
	Saturn 2 L.	......	57,9	......	26,2	......	53,9	15 . 29	– 0,02	B.
	α Serpentis	3,2	16,7	30,2	44,1	57,6	11,1	15 . 36 . 24,3		B.
June 4	β Leonis	28,6	42,7	56,4	10,5	24,3	38,1	11 . 40 . 52,1		B.
	Polaris SP	......	43.32,3	51.45,5	59.56,8	8.16,4	16.36,6	13 . 24 . 51,7	– 4 . 7,45	B.
	m Virginis	49,3	2,9	16,5	30,3	43,8	57,2	13 . 33 . 10,9		B.
	(*a*) ☽ 1 L.	4,0	17,8	31,7	47,2	1,3	15,7	14 . 3 . 29,9		B.
	(*b*) 2 Libræ (cloudy)	......	38,7	53,0	7,1	20,2	34,1	14 . 14 . 47,8	– 6,86	B.
	ε Bootis (cloudy)	33,1	48,1	3,3	19,0	34,4	49,1	14 . 37 . 4,2		B.
	α^2 Libræ	37,1	51,1	5,3	19,2	33,1	46,8	14 . 42 . 0,7		B.
	Saturn 1 L.	4,7	......	33,0	......	1,1	......	15 . 29 . 29,1	+ 0,02	B.
	Saturn 2 L.	......	21,8	......	50,4	......	18,3	15 . 29	– 0,02	B.
	α Serpentis	0,8	14,2	27,7	41,4	55,2	8,4	15 . 36 . 22,1		B.
	α Herculis	57,0	11,8	25,9	39,4	53,2	7,1	17 . 7 . 21,1		B.
	α Ophiuchi (flaring)	7,2	21,1	35,0	48,7	2,4	16,2	17 . 27 . 30,1		B.
	A.S.C. 2047	24,1	39,8	55,3	11,3	26,5	42,2	17 . 40 . 58,1		B.
	Juno (very faint)	9,8	23,4	37,2	51,0	4,3	17,5	17 . 57 . 30,7		B.
	Polaris	35.45,8	44. 2,3	52.23,7	0.42,5	8.51,6	17. 5,4	1 . 25 . 21,2		B.
June 5	Jupiter 1 L.	27,0	......	54,7	......	22,1	......	10 . 48 . 49,2	+ 0,02	B.
	Jupiter 2 L.	......	43,5	......	11,0	......	38,1	10 . 48	– 0,02	B.
	Polaris SP (cloudy)	35.18,3	......	......	......	8.15,4	16.35,7	13 . 24 . 50,6	– 6 . 13,09	B.
	Arcturus	55,8	10,2	24,5	39,1	53,1	7,3	14 . 8 . 21,8		B.
	2 Libræ	24,0	37,6	51,1	5,1	19,0	32,4	14 . 14 . 46,1		B.
	ε Bootis	31,6	47,0	2,1	17,4	32,3	47,5	14 . 38 . 3,0		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*. The Transit levelled June 5, 7^h.

(*a*) Very unsatisfactory: so cloudy that some of the wires are mere guesses.

(*b*) Not good.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
13. 0. 7,14	21,54	+0,60	22,48	54,08	31,60	1,24	30,66	1. 0.53,81	Polaris SP.
14. 7.47,82			47,39	18,69	31,30			14. 8.18,78	Arcturus.
14.41.26,69			26,49	57,94	31,45			14.41.57,91	α^2 Libræ.
15.27.21,30			20,82	52,33	31,51			15.27.52,27	α Coronæ Bor.
15.30.36,52 15.30.39,58			37,86					15.31. 9,32	Saturn's center.
15.35.48,85			48,51	19,94	31,43			15.36.19,98	α Serpentis
15.46.57,82			57,39					15.47.28,87	A.S.C. 1817.
1. 0.38,24	23,32		22,45	54,37	31,92	1,24	31,90	1. 0.54,40	Polaris.
9.59.13,10			12,73	45,23	32,50			9.59.45,15	Regulus.
10.10.30,84			30,41					10.11. 2,84	γ Leonis.
10.21.17,04			16,67					10.21.49,11	☽ 1 L.
11.40.16,86			16,47	49,06	32,59			11.40.48,97	β Leonis.
13. 0. 7,07	21,47		22,41	54,67	32,26			1. 0.54,98	Polaris SP.
14.41.25,34			25,14	57,95	32,81			14.41.57,80	α^2 Libræ.
16. 5.21,83			21,46	54,03	32,57			16. 5.54,19	δ Ophiuchi.
16.18.59,25			59,13	31,87	32,74			16.19.31,87	Antares.
17. 3.39,39			39,27					17. 4.12,05	29 Scorpii.
17. 9.57,86			57,68					17.10.30,47	A.S.C. 1979.
17.26.55,09			54,72	27,36	32,64			17.27.27,52	α Ophiuchi.
4.33.46,79 4.36. 3,27			54,59			1,24	34,38	4.35.29,21	☉'s center.
4.37.50,99 4.40. 7,97		+1,67	59,08			1,30	35,51	4.39.34,84	☉'s center.
14.41.21,77			21,64	57,95	36,31			14.41.57,95	α^2 Libræ.
15.29.22,92 15.29.25,98			24,33					15.30. 0,68	Saturn's center.
15.35.43,89			43,60	19,96	36,36			15.36.19,95	α Serpentis.
11.40.10,38			10,03	49,01	38,98	1,28	38,19	11.40.48,84	β Leonis.
13. 0. 2,43	16,61		19,22	58,15	38,93			1. 0.58,10	Polaris SP.
13.32.30,12			29,94					13.33. 8,85	*m* Virginis.
14. 2.46,80			46,68					14. 3.25,62	☽ 1 L.
14.14. 6,62			6,46					14.14.45,41	2 Libræ.
14.36.18,75			18,30	57,16	38,86			14.36.57,27	ε Bootis.
14.41.19,05			18,92	57,95	39,03			14.41.57,89	α^2 Libræ.
15.28.46,99 15.28.50,15			48,46					15.29.27,47	Saturn's center.
15.35.41,40			41,12	19,97	38,85			15.36.20,14	α Serpentis.
17. 6.39,36			39,02	18,23	39,21			17. 7.18,12	α Herculis.
17.26.48,68			48,35	27,44	39,09			17.27.27,47	α Ophiuchi.
17.40.11,04			11,03					17.40.50,16	A.S.C. 2047.
17.56.50,55			50,36					17.57.29,50	Juno.
1. 0.36,07	21,39		18,96	58,55	39,59		39,47	1. 0.58,48	Polaris.
10.48. 8,27 10.48.10,85			9,27			1,15	39,54	10.48.49,33	Jupiter's center.
13. 0. 1,91	16,09		18,70	58,96	40,26			1. 0.58,86	Polaris SP.
14. 7.38,83			38,45	18,67	40,22			14. 8.18,67	Arcturus.
14.14. 5,04			4,88					14.14.45,10	2 Libræ.
14.37.17,27			16,82	57,16	40,34			14.37.57,06	ε Bootis.

Error of Collimation = − 0″,97.
Level Error = − 6″,31. From June 4 = − 6″,19.
Meridian Error from June 2 by Polaris SP, Polaris, and Polaris SP, June 4 and 5.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
June 5	α² Libræ..............	36,1	50,0	3,7	18,1	32,2	45,9	14.41.59,6		B.
	☽ 1 L................	5,1	19,7	34,7	49,4	4,0	18,8	14.53.33,2		B.
June 6	Regulus..............	23,1	36,8	50,5	4,5	18,3	32,0	9.59.45,7		B.
	Jupiter 1 L.} ... (cloudy)	45,7	......	13,1	......	40,3	......	10.48.....	+13,61	B.
	Jupiter 2 L.}	......	1,7	......	29,1	......	......	10.48.....	+13,57	B.
	β Leonis.............	26,3	40,2	54,4	8,4	22,2	36,1	11.40.50,0		B.
	Arcturus.............	54,7	9,1	23,6	38,0	52,3	6,5	14. 8.20,6		B.
June 7	⊙ 2 L....... (very cloudy)	51,0	6,0	20,4	35,1	49,7	4,2	5. 1.19,0		B.
	Jupiter 1 L..........	4,4	......	32,0	......	59,2	......	10.49.26,1	+0,02	B.
	Jupiter 2 L..........	......	20,7	......	48,4	......	15,2	10.49.....	−0,02	B.
	β Leonis.............	24,9	38,7	52,8	7,0	20,9	34,6	11.40.48,4		B.
	Polaris SP............	35.16,7	43.30,5	51.46,4	59.55,6	8.14,7	16.34,8	13.24.50,3		B.
	ε Bootis...............	29,1	44,1	59,5	15,0	30,1	45,2	14.38. 0,1		B.
	α² Libræ	33,0	47,1	1,3	15,2	29,1	43,2	14.41.56,9		B.
	(a) ☽ 1 L................	38,7	54,4	10,1	26,0	41,3	57,0	16.47.12,7		B.
	☽ 2 L................	5,3	21,1	36,9	53,0	8,2	23,5	16.49.39,3		B.
	α Herculis............	53,9	8,1	22,0	35,9	49,7	3,3	17. 7.17,1		B.
	θ Ophiuchi..... (cloudy)	39,3	54,3	9,2	24,1	39,0	53,4	17.11.....	+7,39	B.
	3 Sagittarii..... (cloudy)	56,1	......	......	42,1	57,2	12,6	17.37.27,3	−9,13	B.
	Polaris................	35.43,8	44. 0,3	52.24,6	0.42,4	8.53,2	......	1.........	+8.14,83	B.
June 8	Jupiter 1 L.} ..... (faint)	23,7	......	51,1	......	18,3	......	10.49.45,2	+0,02	B.
	Jupiter 2 L.}	......	39,9	......	7,4	......	34,4	10.49.....	−0,02	B.
	β Leonis.............	23,3	37,1	51,2	5,5	19,4	33,1	11.40.47,1		B.
	Polaris SP............	35.12,4	43.30,7	51.42,3	59.53,8	8.14,7	16.34,5	13;24.52,6		B.
	Arcturus...... (blazing)	52,1	6,1	20,6	35,1	49,2	4,1	14. 8.18,0		B.
	ε Bootis..............	27,8	42,7	58,2	13,3	28,3	43,7	14.37.59,0		B.
	α² Libræ.............	31,7	45,9	59,9	14,1	28,0	41,7	14.41.55,4		B.
	(b) Saturn 1 L...........	54,9	......	22,2	......	......	5,1	15.28.18,8	−3,47	B.
	Saturn 2 L...........	......	11,7	......	40,1	54,2	......	15.27.....	+4,63	B.
	α Serpentis...........	55,3	9,1	22,7	36,2	50,0	3,2	15.36.17,0		B.
	Antares..............	3,1	17,7	32,9	47,9	3,0	17,4	16.19.32,3		B.
	α Herculis............	52,3	6,1	20,1	34,2	48,1	1,9	17. 7.16,0		B.
	θ Ophiuchi............	38,1	53,1	8,1	22,7	37,2	52,1	17.12. 6,8		B.
	3 Sagittarii...........	54,8	10,3	25,4	40,9	55,9	11,3	17.37.26,2		B.
	☽ 2 L.......... (unsteady)	9,9	26,0	41,9	58,1	13,8	29,3	17.52.45,2		B.
	δ Sagittarii...........	9,7	25,1	40,8	56,2	11,9	27,2	18.10.42,7		B.
	φ Sagittarii...........	5,1	20,2	35,4	50,8	5,8	21,1	18.35.35,8		B.
June 9	Jupiter 1 L.} (faint and hazy)	43,6	......	10,3	......	38,2	......	10.50. 5,7	+0,02	B.
	Jupiter 2 L.}	......	59,9	......	27,3	......	54,7	10.49.....	−0,02	B.
	Saturn 1 L............	37,9	......	5,7	......	34,0	......	15.28. 1,8	+0,02	B.
	Saturn 2 L............	......	54,6	......	23,1	......	50,8	15.27.....	−0,02	B.
	α Serpentis...........	53,9	8,1	21,2	34,6	48,3	2,1	15.36.15,3		B.
	δ Ophiuchi...........	28,4	41,6	55,2	9,0	22,2	36,0	16. 5.49,2		B.
	Antares...............	1,3	16,0	31,2	46,3	1,7	16,2	16.19.31,3		B.
	α Herculis............	51,2	5,1	19,1	33,0	46,9	0,6	17. 7.14,4		B.
	α Ophiuchi...........	0,8	14,3	28,2	42,2	56,1	9,8	17.27.23,5		B.
June 11	Mercury 2 L... (cloudy)	......	......	38,2	52,4	6,4	20,3	3.45.34,3	−14,07	B.
June 12	⊙ 1 L.} ..... (very cloudy)	......	......	......	51,8	6,0	20,7	5.19.35,2	−22,03	B.
	⊙ 2 L.}	25,1	40,0	54,3	9,2	24,0	......	5.21.....	+14,65	B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*.
The Transit levelled June 13, 6^h.

(a) Much motion. 2 L ragged and bad to observe. Correction applied to apparent Æ of 2 L for defect of illumination = + 0^s,11.

(b) Confused.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
14 . 41 . 17,95		+ 1,67	17,82	57,96	40,14	1,15	39,54	14 . 41 . 58,06	α² Libræ.
14 . 52 . 49,27			49,19					14 . 53 . 29,44	☽ 1 L.
9 . 59 . 4,41			4,08	45,17	41,09	1,45	40,42	9 . 59 . 45,10	Regulus.
10 . 48 . 26,64			27,52					10 . 49 . 8,59	Jupiter's center.
10 . 48 . 28,97									
11 . 40 . 8,23			7,88	48,99	41,11			11 . 40 . 49,01	β Leonis.
14 . 7 . 37,83			37,45	18,67	41,22			14 . 8 . 18,72	Arcturus.
5 . 0 . 35,06		+ 2,03	34,67			1,43	41,94	5 . 1 . 16,91	☉ 2 L.
10 . 48 . 45,44			46,49					10 . 49 . 29,07	Jupiter's center.
10 . 48 . 48,08									
11 . 40 . 6,76			6,43	48,98	42,55			11 . 40 . 49,07	β Leonis.
13 . 0 . 1,29	15,47		18,64	0,65	42,01			1 . 1 . 1,35	Polaris SP.
14 . 37 . 14,73			14,29	57,15	42,86			14 . 37 . 57,10	ε Bootis.
14 . 41 . 15,11			15,00	57,96	42,96			14 . 41 . 57,81	α² Libræ.
16 . 46 . 25,74			25,74					16 . 47 . 8,68	☽ 1 L.
16 . 48 . 52,47			52,47					16 . 49 . 35,41	☽ 2 L.
17 . 6 . 35,71			35,39	18,27	42,88			17 . 7 . 18,35	α Herculis.
17 . 11 . 23,94			23,92					17 . 12 . 6,88	θ Ophiuchi.
17 . 36 . 41,93			41,93					17 . 37 . 24,92	3 Sagittarii.
1 . 0 . 35,69	21,01		18,06	1,06	43,00		43,37	1 . 1 . 1,49	Polaris.
10 . 49 . 4,59			5,63			1,36	43,35	10 . 49 . 49,59	Jupiter's center.
10 . 49 . 7,21									
11 . 40 . 5,24			4,91	48,97	44,06			11 . 40 . 48,92	β Leonis.
13 . 0 . 0,14	14,32		17,49	1,47	43,98			1 . 1 . 1,58	Polaris SP.
14 . 7 . 35,03			34,67	18,66	43,99			14 . 8 . 18,82	Arcturus.
14 . 37 . 13,28			12,84	57,15	44,31			14 . 37 . 57,02	ε Bootis.
14 . 41 . 13,81			13,70	57,96	44,26			14 . 41 . 57,88	α² Libræ.
15 . 27 . 36,78			38,28					15 . 28 . 22,51	Saturn's center.
15 . 27 . 39,96									
15 . 35 . 36,22			35,96	19,98	44,02			15 . 36 . 20,19	α Serpentis.
16 . 18 . 47,76			47,75	31,97	44,22			16 . 19 . 32,02	Antares.
17 . 6 . 34,10			33,78	18,28	44,50			17 . 7 . 18,10	α Herculis.
17 . 11 . 22,58			22,56					17 . 12 . 6,88	θ Ophiuchi.
17 . 36 . 40,68			40,68					17 . 37 . 25,03	3 Sagittarii.
17 . 51 . 57,74			57,75					17 . 52 . 42,11	☽ 2 L.
18 . 9 . 56,23			56,25					18 . 10 . 40,63	δ Sagittarii.
18 . 34 . 50,60			50,59					18 . 35 . 34,99	ϕ Sagittarii.
10 . 49 . 24,47			25,61			1,34	44,72	10 . 50 . 10,93	Jupiter's center.
10 . 49 . 27,28									
15 . 27 . 19,87			21,25					15 . 28 . 6,83	Saturn's center.
15 . 27 . 22,81									
15 . 35 . 34,79			34,53	19,99	45,46			15 . 36 . 20,12	α Serpentis.
16 . 5 . 8,80			8,49	54,11	45,62			16 . 5 . 54,11	δ Ophiuchi.
16 . 18 . 46,29			46,28	31,98	45,70			16 . 19 . 31,91	Antares.
17 . 6 . 32,90			32,58	18,29	45,71			17 . 7 . 18,25	α Herculis.
17 . 26 . 42,13			41,82	27,51	45,69			17 . 27 . 27,51	α Ophiuchi.
3 . 44 . 52,25			51,89			1,27	48,55	3 . 45 . 40,64	Mercury 2 L.
5 . 18 . 51,39			59,86					5 . 20 . 48,69	☉'s center.
5 . 21 . 9,17									

Error of Collimation = − 0″,97.

Level Error = − 6″,19. From June 11 = − 6″,64.

Meridian Error from June 7 by Polaris SP, Polaris, and Polaris SP June 7 and 8.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	*m. s.*	*m. s.*	*m. s.*	*m. s.*	*m. s.*	*h. m. s.*	*m. s.*	
June 12	Castor	39,0	55,0	10,7	26,8	42,5	58,5	7 . 24 . 14,3		B.
	Procyon (very unsteady)	19,7	33,2	47,0	0,6	14,2	27,3	7 . 30 . 40,8		B.
	Pollux	49,3	4,8	20,1	35,3	50,5	5,9	7 . 35 . 20,9		B.
	(*a*) Jupiter 1 L	46,7	......	14,2	......	......	......	10 . 49	+ 27,22	G.
	Jupiter 2 L	......	2,6	......	30,1	43,3	......	10 . 50	+ 4,49	G.
	β Leonis	18,3	32,2	46,3	0,4	14,1	28,0	11 . 40 . 42,0		G.
	Arcturus (blazing)	47,1	1,2	15,7	30,2	44,2	58,7	14 . 8 . 12,9		G.
	Saturn 1 L. (cloudy)	47,9	......	16,2	......	44,3	......	15 . 26	+ 14,02	G.
	Saturn 2 L.	......	5,0	......	33,2	......	......	15 . 26	+ 13,97	G.
	α Serpentis	50,3	3,6	17,6	31,1	44,4	58,2	15 . 36 . 11,7		B.
June 14	⊙ 1 L.	22,4	37,4	52,4	7,0	21,4	36,1	5 . 27 . 50,4		B.
	⊙ 2 L.	40,3	55,0	10,0	24,7	39,3	54,0	5 . 30 . 8,5		B.
June 15	⊙ 1 L. (hazy and faint)	......	......	......	14,0	29,1	44,1	5 . 31 . 58,4	– 22,06	B.
	⊙ 2 L.	48,0	3,1	18,1	32,7	47,1	2,1	5 . 34 . 16,6		B.
	Saturn 1 L.	0,1	......	28,0	......	56,2	......	15 . 26 . 24,0	+ 0,02	B.
	Saturn 2 L.	......	16,9	......	45,5	......	13,4	15 . 26	– 0,02	B.
	α Serpentis	46,1	59,8	14,0	27,3	40,9	54,2	15 . 36 . 7,9		B.
	A.S.C. 1848 (very faint)	22,0	37,9	53,3	8,9	24,1	39,2	16 . 0 . 54,5		B.
	δ Ophiuchi	20,7	34,1	47,7	1,4	14,8	28,2	16 . 5 . 41,6		B.
	Antares	54,1	8,9	24,0	39,2	54,0	8,6	16 . 19 . 23,4		B.
	α Ophiuchi	53,0	7,0	20,8	34,8	48,5	2,1	17 . 27 . 15,9		B.
	(*b*) Juno	45,2	58,7	13,0	26,5	39,7	53,0	17 . 47 . 6,4		B.
June 16	⊙ 1 L.	38,4	52,9	8,0	22,7	37,2	52,0	5 . 36 . 6,5		B.
	⊙ 2 L.	56,3	11,0	26,0	41,1	55,3	10,0	5 . 38 . 24,4		B.
June 17	(*c*) Venus 2 L	44,6	58,3	12,4	26,2	40,1	......	2 . 47	+ 13,86	B.
June 18	Mercury 2 L	57,3	11,4	25,7	40,3	54,2	8,6	4 . 17 . 22,7		B.
June 19	⊙ 1 L. (cloudy)	3,2	18,2	33,0	......	......	16,9	5 . 48 . 31,4	+ 2,99	B.
	⊙ 2 L.	21,1	36,0	50,8	5,5	20,1	34,7	5 . 50 . 49,3		B.
	(*d*) Procyon	11,0	24,3	37,8	51,7	5,1	18,5	7 . 30 . 32,0		B.
	(*d*) Pollux	40,4	55,8	11,2	26,8	41,9	......	7 . 35 . 12,9	+ 5,09	B.
	Arcturus	38,1	52,5	6,8	21,2	35,2	49,5	14 . 8 . 3,9		B.
	ε Bootis	14,0	29,1	44,6	59,8	14,9	29,9	14 . 37 . 45,1		B.
	α^2 Libræ	18,3	32,1	46,1	0,2	13,9	27,7	14 . 41 . 42,0		B.
	Saturn 1 L. (cloudy)	0,2	......	28,4	......	56,3	......	15 . 24	+ 14,01	B.
	Saturn 2 L.	......	17,0	......	45,5	......	......	15 . 24	+ 13,97	B.
	(*e*) α Coronæ Borealis	......	......	39,6	55,0	9,9	25,0	15 . 27 . 40,1	– 15,18	B.
	α Serpentis	41,8	55,2	8,9	22,4	35,8	49,1	15 . 36 . 3,0		B.
June 20	Mercury 2 L	21,4	36,2	50,3	4,8	19,2	33,4	4 . 28 . 47,4		B.
June 21	(*f*) ⊙ 1 L.	20,4	35,0	49,7	5,0	19,4	34,0	5 . 56 . 48,9		B.
	⊙ 2 L.	38,3	53,1	8,0	23,0	37,3	52,0	5 . 59 . 7,0		B.
	Castor	......	......	0,3	16,1	31,7	48,0	7 . 24 . 3,8	– 15,95	B.
	Procyon	9,1	22,4	35,9	49,7	3,1	16,5	7 . 30 . 29,9		B.
	Pollux	38,6	53,8	9,1	24,3	39,7	54,9	7 . 35 . 10,2		B.
	Jupiter 1 L.	23,5	......	51,0	......	18,0	......	10 . 54 . 45,0	+ 0,02	B.
	Jupiter 2 L.	......	39,7	......	7,1	......	33,9	10 . 54	– 0,02	B.
	Arcturus (very cloudy)	35,7	50,1	4,2	18,2	33,1	47,3	14 . 8 . 2,2		B.
	α^2 Libræ	16,1	30,0	44,1	57,3	11,9	25,9	14 . 41 . 40,0		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*.
From Arcturus June 21...... EAST. .... *ABCDEFG*.
June 21, 4^h^. Transit levelled in two positions of the Telescope before the reversion.
June 21, 6^h^. Transit reversed for Collimation Error, and levelled immediately after the reversion in two positions of the Telescope.

(*a*) Order of wires confused.
(*b*) Extremely faint and doubtful.
(*c*) Very cloudy and doubtful.
(*d*) Very cloudy and wind loud.
(*e*) Hurried.
(*f*) Wind very boisterous during this and the four following observations.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0^h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
7 . 23 . 26,69		+ 2,03	26,17	15,44	49,27	1,27	48,55	7 . 24 . 15,11	Castor.
7 . 30 . 0,40			0,12	49,10	48,98			7 . 30 . 49,07	Procyon.
7 . 34 . 35,26			34,79	23,79	49,00			7 . 35 . 23,74	Pollux.
10 . 49 . 27,67			28,44					10 . 50 . 17,56	Jupiter's center.
10 . 49 . 29,82									
11 . 40 . 0,18			59,83	48,93	49,10			11 . 40 . 49,00	β Leonis.
14 . 7 . 30,00			29,61	18,64	49,03			14 . 8 . 18,91	Arcturus.
15 . 26 . 30,15			31,50					15 . 27 . 20,87	Saturn's center.
15 . 26 . 33,07									
15 . 35 . 30,98			30,70	19,99	49,29			15 . 36 . 20,08	α Serpentis.
5 . 27 . 6,73			15,21			1,26	51,09	5 . 29 . 6,59	⊙'s center.
5 . 29 . 24,54									
5 . 31 . 14,34			23,02				52,35	5 . 33 . 15,66	⊙'s center.
5 . 33 . 32,53									
15 . 25 . 42,09			43,56					15 . 26 . 36,72	Saturn's center.
15 . 25 . 45,25									
15 . 35 . 27,17			26,89	20,00	53,11			15 . 36 . 20,06	α Serpentis.
16 . 0 . 8,56			8,56					16 . 1 . 1,75	A.S.C. 1848.
16 . 5 . 1,21			0,88	54,14	53,26			16 . 5 . 54,07	δ Ophiuchi.
16 . 18 . 38,89			38,87	32,02	53,15			16 . 19 . 32,08	Antares.
17 . 26 . 34,59			34,26	27,57	53,31			17 . 27 . 27,52	α Ophiuchi.
17 . 46 . 26,07			25,88					17 . 47 . 19,16	Juno.
5 . 35 . 22,53			31,14				53,61	5 . 37 . 25,04	⊙'s center.
5 . 37 . 40,58									
2 . 47 . 26,18		+ 1,31	25,80			1,17	56,20	2 . 48 . 22,14	Venus 2 L.
4 . 16 . 40,02			39,60			1,12	57,37	4 . 17 . 37,17	Mercury 2 L.
5 . 47 . 47,53			56,00					5 . 49 . 53,64	⊙'s center.
5 . 50 . 5,36									
7 . 29 . 51,48			51,16	49,12	57,96			7 . 30 . 48,88	Procyon.
7 . 34 . 26,59			26,09	23,81	57,72			7 . 35 . 23,81	Pollux.
14 . 7 . 21,02			20,59	18,59	58,00			14 . 8 . 18,62	Arcturus.
14 . 36 . 59,63			59,13	57,09	57,96			14 . 37 . 57,18	ε Bootis.
14 . 41 . 0,04			59,87	57,94	58,07			14 . 41 . 57,92	α^2 Libræ.
15 . 24 . 42,31			43,61					15 . 25 . 41,70	Saturn's center.
15 . 24 . 45,22									
15 . 26 . 54,74			54,25	52,32	58,07			15 . 27 . 52,34	α Coronæ Bor.
15 . 35 . 22,31			21,98	20,00	58,02			15 . 36 . 20,08	α Serpentis.
4 . 28 . 4,67			4,24			1,09	59,56	4 . 29 . 4,00	Mercury 2 L.
5 . 56 . 4,63			13,20					5 . 58 . 13,03	⊙'s center.
5 . 58 . 22,67									
7 . 23 . 16,03			15,49	15,48	59,99			7 . 24 . 15,39	Castor.
7 . 29 . 49,52			49,20	49,13	59,93			7 . 30 . 49,10	Procyon.
7 . 34 . 24,37			23,87	23,82	59,95			7 . 35 . 23,77	Pollux.
10 . 54 . 4,39			5,29					10 . 55 . 5,35	Jupiter's center.
10 . 54 . 6,88									
14 . 7 . 18,69		– 0,31	18,39	18,57	60,18			14 . 8 . 18,59	Arcturus.
14 . 40 . 57,90			57,79	57,93	60,14			14 . 41 . 58,02	α^2 Libræ.

Error of Collimation = – 0″,97. From Arcturus June 21 = + 0″,97.
Level Error = – 6″,64. From June 17 = – 6″,78. From Arcturus June 21 = – 6″,00.
Meridian Error from June 17 by bisection of Grantchester cross June 21, before the reversion. (See Introduction.)
Meridian Error by Polaris SP, Polaris, and Polaris SP June 22 and 23 = – 0″,81; by bisection of Grantchester cross after the reversion June 21 = + 0″,19. The mean is used from Arcturus June 21. (See Introduction.)

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
June 21	Saturn 1 L............	32,0	......	59,9	......	28,0	......	15 . 24 . 56,1	– 0,02	B.
	Saturn 2 L............	......	49,1	......	17,1	......	45,4	15 . 24	+ 0,02	B.
	α Serpentis...........	39,4	53,0	6,4	19,9	33,4	47,2	15 . 36 . 0,7		B.
	α Ophiuchi...........	46,3	0,3	13,9	27,2	41,1	55,0	17 . 27 . 9,1		B.
	(*a*) Juno................	......	......	52,1	5,3	18,9	32,4	17 . 43 . 45,5	– 13,46	B.
June 22	Castor.......... (cloudy)	27,1	42,9	58,8	14,9	30,6	46,5	7 . 23	+ 7,97	B.
	Procyon..............	7,9	21,1	34,7	48,1	1,8	15,3	7 . 30 . 28,9		B.
	Pollux................	37,2	52,6	8,2	23,0	38,3	53,9	7 . 35 . 9,2		B.
	(*b*) Jupiter 1 L...........	50,0	......	17,0	......	......	......	10 . 54	+ 27,16	B.
	Jupiter 2 L...........	......	6,1	......	33,0	......	......	10 . 54	+ 13,66	B.
	Polaris SP............	35.14,2	43.28,8	51.50,3	0.10,4	8.20,3	16.33,5	13 . 24 . 47,7		B.
	Arcturus...... (Temp. 59°)	35,1	48,9	3,2	17,7	31,9	46,3	14 . 8 . 0,2		B.
	Saturn 1 L............	18,9	......	46,2	......	14,3	......	15 . 24 . 42,7	– 0,02	B.
	Saturn 2 L............	......	35,4	......	3,5	......	31,7	15 . 24	+ 0,02	B.
	α Serpentis...........	38,5	52,2	5,3	18,9	32,3	46,1	15 . 35 . 59,7		B.
	(*c*) *p* Scorpii............	33,3	49,1	4,7	19,8	35,5	51,3	16 . 9 . 7,3		B.
	Antares..............	46,0	1,1	15,5	30,4	45,4	0,8	16 . 19 . 15,4		B.
	A.S.C. 1974..........	31,2	46,0	0,7	15,1	30,1	44,8	17 . 7 . 59,5		B.
	α Ophiuchi...........	45,1	59,1	12,9	26,2	40,1	54,1	17 . 27 . 8,0		B.
	(*d*) Juno................	31,1	44,3	57,9	11,2	25,0	38,3	17 . 41 . 51,8		B.
	Polaris................	35.35,7	43.50,6	52. 3,3	0.13,8	8.32,6	16.52,5	1 . 25 . 7,7		B.
	Venus 2 L............	38,1	52,4	6,8	20,5	34,9	48,7	3 . 10 . 2,9		B.
	Aldebaran............	54,3	8,1	22,1	36,1	50,0	4,7	4 . 26 . 18,2		B.
June 23	⊙ 1 L.................	38,9	53,5	7,0	21,9	36,2	51,0	6 . 5 . 5,9		B.
	⊙ 2 L.................	55,9	10,4	25,0	39,5	54,2	9,0	6 . 7 . 24,0		B.
	Procyon (cloudy and unsteady)	......	......	34,6	48,0	1,1	14,3	7 . 30 . 27,7	– 13,49	B.
	Pollux................	36,2	51,4	6,9	21,9	37,2	52,9	7 . 35 . 8,1		B.
	α Hydræ.............	55,1	8,9	22,1	35,7	49,3	3,1	9 . 19 . 16,5		B.
	(*e*) Jupiter 1 L...........	17,1	......	44,1	......	11,3	......	10 . 55 . 38,6	– 0,02	B.
	Jupiter 2 L...........	......	32,7	......	0,1	......	27,4	10 . 55	+ 0,02	B.
	Polaris SP............	35.14,5	43.30,3	51.50,2	0. 8,6	8.18,2	16.31,7	13 . 24 . 48,0		B.
	Saturn 1 L............	5,1	......	32,9	......	1,1	......	15 . 24 . 29,1	– 0,02	B.
	Saturn 2 L............	......	22,0	......	50,1	......	18,3	15 . 24	+ 0,02	B.
	α Serpentis...........	37,1	50,7	4,1	17,7	31,0	44,8	15 . 35 . 58,4		B.
	p Scorpii............	31,9	47,8	3,2	19,1	34,8	50,5	16 . 9 . 6,2		B.
	Antares..............	45,1	59,7	14,5	29,4	44,3	59,6	16 . 19 . 14,9		B.
	α Herculis...........	34,7	48,2	2,0	16,0	29,9	43,9	17 . 6 . 58,0		B.
	(*a*) Juno................	37,8	51,1	4,6	18,0	31,9	45,2	17 . 40 . 58,7		B.
June 24	Procyon..............	5,7	19,1	32,3	45,8	59,3	13,1	7 . 30 . 26,5		B.
	Pollux................	35,1	50,5	5,8	20,7	36,2	51,5	7 . 35 . 6,9		B.
	Venus 2 L............	32,9	46,9	1,0	14,8	28,6	43,3	3 . 18 . 57,1		B.
June 25	⊙ 1 L.......... (cloudy)	54,2	9,1	23,7	38,3	53,1	8,0	6 . 14 . 22,7		B.
June 27	⊙ 1 L.................	11,1	25,8	40,4	55,0	9,9	24,5	6 . 22 . 39,3		B.
	⊙ 2 L.................	29,0	43,8	58,3	13,0	27,8	42,4	6 . 24 . 57,1		B.
June 29	(*e*) Jupiter 1 L...........	9,1	......	36,2	......	4,0	......	10 . 59 . 30,8	– 0,02	B.
	Jupiter 2 L...........	......	25,2	......	52,3	......	19,5	10 . 59	+ 0,02	B.
	ε Bootis..............	3,3	18,6	33,4	48,8	4,1	19,3	14 . 38 . 34,2		B.
	(*f*) α^2 Libræ.............	7,6	21,5	35,4	49,1	3,2	17,3	14 . 42 . 31,1		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.
After Venus June 24 the clock was put forward 1^m.
The Transit levelled June 29, 7^h.

(*a*) Extremely faint.
(*b*) Wind very loud.
(*c*) Double star: largest observed.
(*d*) Several wires doubtful.
(*e*) Jupiter is getting faint.
(*f*) Very cloudy: α^1 invisible.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
15 . 24 . 13,98		– 0,31	15,49			1,09	59,56	15 . 25 . 15,75	Saturn's center.
15 . 24 . 17,22									
15 . 35 . 20,00			19,78	20,00	60,22			15 . 36 . 20,05	α Serpentis.
17 . 26 . 27,56			27,30	27,63	60,33			17 . 27 . 27,65	α Ophiuchi.
17 . 43 . 5,38			5,21					17 . 44 . 5,57	Juno.
7 . 23 . 14,77			14,40	15,49	61,09	1,08	60,66	7 . 24 . 15,39	Castor.
7 . 29 . 48,26			48,03	49,13	61,10			7 . 30 . 49,03	Procyon.
7 . 34 . 23,20			22,84	23,82	60,98			7 . 35 . 23,84	Pollux.
10 . 54 . 30,66			31,71					10 . 55 . 32,86	Jupiter's center.
10 . 54 . 33,21									
13 . 0 . 3,60	12,63		12,15	12,32	60,17			1 . 1 . 13,39	Polaris SP.
14 . 7 . 17,62			17,32	18,56	61,24			14 . 8 . 18,61	Arcturus.
15 . 24 . 0,50			1,92					15 . 25 . 3,27	Saturn's center.
15 . 24 . 3,55									
15 . 35 . 19,00			18,78	20,00	61,22			15 . 36 . 20,14	α Serpentis.
16 . 8 . 20,15			20,15					16 . 9 . 21,53	*p* Scorpii.
16 . 18 . 30,65			30,61	32,06	61,45			16 . 19 . 32,00	Antares.
17 . 7 . 15,34			15,29					17 . 8 . 16,72	A.S.C. 1974.
17 . 26 . 26,50			26,24	27,63	61,39			17 . 27 . 27,68	α Ophiuchi.
17 . 41 . 11,37			11,20					17 . 42 . 12,65	Juno.
1 . 0 . 19,46	9,93		10,38	12,71	62,33	1,13	61,72	1 . 1 . 12,15	Polaris.
3 . 9 . 20,61			20,34					3 . 10 . 22,21	Venus 2 L.
4 . 25 . 36,22			35,94	38,05	62,11			4 . 26 . 37,87	Aldebaran.
6 . 4 . 22,05			30,57					6 . 6 . 32,58	⊙'s center.
6 . 6 . 39,72									
7 . 29 . 47,65			47,42	49,14	61,72			7 . 30 . 49,49	Procyon.
7 . 34 . 22,08			21,72	23,83	62,11			7 . 35 . 23,80	Pollux.
9 . 18 . 35,81			35,66	37,89	62,23			9 . 19 . 37,82	α Hydræ.
10 . 54 . 57,75			58,69					10 . 56 . 0,92	Jupiter's center.
10 . 55 . 0,09									
13 . 0 . 3,07	12,10		11,62	13,10	61,48			1 . 1 . 13,95	Polaris SP.
15 . 23 . 47,03			48,48					15 . 24 . 50,92	Saturn's center.
15 . 23 . 50,15									
15 . 35 . 17,69			17,47	19,99	62,52			15 . 36 . 19,93	α Serpentis.
16 . 8 . 19,08			19,08					16 . 9 . 21,56	*p* Scorpii.
16 . 18 . 29,65			29,61	32,06	62,45			16 . 19 . 32,10	Antares.
17 . 6 . 16,10			15,83	18,39	62,56			17 . 7 . 18,36	α Herculis.
17 . 40 . 18,19			18,02					17 . 41 . 20,57	Juno.
7 . 29 . 45,97			45,74	49,14	63,40	1,18	62,95	7 . 30 . 49,06	Procyon.
7 . 34 . 20,95			20,59	23,83	63,24			7 . 35 . 23,91	Pollux.
3 . 18 . 14,94			14,66			1,10	64,05	3 . 19 . 18,86	Venus 2 L.
6 . 13 . 38,45			38,13				4,05	6 . 13 . 42,46	⊙ 1 L.
6 . 21 . 55,14		– 0,38	3,79			1,00	6,23	6 . 23 . 10,29	⊙'s center.
6 . 24 . 13,05									
10 . 58 . 50,00			50,95			0,85	8,08	10 . 58 . 59,42	Jupiter's center.
10 . 58 . 52,35									
14 . 37 . 48,82			48,47	57,00	8,53			14 . 37 . 57,07	ε Bootis.
14 . 41 . 49,32			49,21	57,89	8,68			14 . 41 . 57,81	α^2 Libræ.

Error of Collimation = + 0″,97.

Level Error = – 6″,00. From June 27 = – 5″,91.

Meridian Error from June 27 by bisection of Grantchester cross June 27, with correction – 0″,50.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
June 29	(*a*) Saturn 1 L.	51,8	... ...	19,9	... ...	47,8	... ...	15 . 24 . 15,6	– 0,02	B.
	Saturn 2 L.	... ...	9,1	... ...	36,6	... ...	4,4	15 . 24	+ 0,02	B.
	(*b*) Venus 2 L.	11,7	25,8	40,4	54,5	8,4	22,6	3 . 42 . 36,7		B.
	Aldebaran.	47,4	1,5	15,2	29,1	43,2	57,3	4 . 27 . 11,2		B.
June 30	Spica .... (cloudy)	51,3	... ...	... ...	32,4	46,1	59,9	13 . 17 . 13,6	– 8,20	B.
July 2	☉ 1 L.	49,7	4,8	18,8	33,3	48,1	2,9	6 . 43 . 17,9		B.
	☉ 2 L.	7,3	22,1	36,4	51,2	6,0	20,8	6 . 45 . 35,3		B.
	α Hydræ	46,1	59,9	13,3	26,8	40,7	54,1	9 . 20 . 7,9		B.
	Regulus	52,7	6,5	20,3	34,1	47,8	1,7	10 . 0 . 15,5		B.
	Jupiter 1 L. } .. (very faint)	40,9	... ...	8,3	... ...	35,4	... ...	11 . 1 . 2,8	– 0,02	B.
	Jupiter 2 L. }	... ...	57,2	... ...	24,1	... ...	51,3	11 . 0	+ 0,02	B.
July 3	Spica	48,7	2,2	15,8	29,1	42,9	56,9	13 . 17 . 10,6		B.
	Arcturus	23,6	37,9	52,1	6,3	20,7	35,2	14 . 8 . 49,1		B.
	ε Bootis	59,3	14,7	29,4	44,7	59,9	15,3	14 . 38 . 30,6		B.
	α^2 Libræ..... (very cloudy)	4,2	17,7	31,9	45,2	59,7	13,8	14 . 42 . 27,3		B.
July 4	☉ 1 L. } ..... (very cloudy)	... ...	18,0	32,1	46,9	1,7	... ...	6 . 51 . 31,0	– 2,89	B.
	☉ 2 L. }	20,3	35,0	48,9	... ...	... ...	... ...	6 . 53	+ 29,25	B.
	Spica	47,7	1,3	14,7	28,3	42,1	55,8	13 . 17 . 9,7		B.
	Arcturus	22,6	36,8	51,0	5,2	19,8	34,1	14 . 8 . 48,3		B.
	ε Bootis	58,7	13,4	28,9	43,5	59,1	14,4	14 . 38 . 29,6		B.
	α^2 Libræ	2,8	16,7	30,6	44,3	58,4	12,4	14 . 42 . 26,3		B.
	Saturn 1 L.	0,2	... ...	27,9	... ...	56,1	... ...	15 . 23 . 24,1	– 0,02	B.
	Saturn 2 L.	... ...	17,2	... ...	44,7	... ...	13,3	15 . 23	+ 0,02	B.
	α Coronæ Borealis	54,1	9,1	24,2	39,1	54,2	9,6	15 . 28 . 24,5		B.
	α Serpentis	26,1	39,7	53,1	6,9	20,2	34,1	15 . 36 . 47,4		B.
	δ Scorpii	52,0	6,2	20,9	35,4	50,1	4,4	15 . 51 . 19,1		B.
	c^2 Scorpii	24,1	39,4	54,1	9,3	25,1	40,1	16 . 2 . 55,1		B.
	☽ 1 L.	1,1	17,0	32,2	47,5	3,2	19,0	16 . 20 . 34,2		B.
	25 Scorpii	1,9	16,8	31,4	46,3	1,2	16,3	16 . 37 . 31,1		B.
	(*c*) A Ophiuchi	28,7	43,1	58,1	13,0	28,1	43,3	17 . 5 . 58,1		B.
	α Ophiuchi	33,1	47,1	0,8	14,3	28,2	42,1	17 . 27 . 55,8		B.
	Juno	15,9	29,4	43,1	56,8	10,3	24,1	17 . 32 . 37,5		B.
	s^2 Clypei Sobieski.....	31,9	45,9	59,8	13,2	27,1	41,2	18 . 24 . 55,1		B.
	Venus 2 L.	21,7	35,7	50,5	4,4	18,7	32,7	4 . 5 . 47,6		B.
	Aldebaran	42,8	56,7	10,8	24,6	38,4	52,6	4 . 27 . 6,7		B.
	α Orionis	... ...	43,6	57,0	10,7	24,0	37,8	5 . 46 . 51,2	– 6,77	B.
	Mercury 2 L... (cloudy)	21,9	... ...	51,4	6,2	20,6	35,9	6 . 17 . 50,7	– 4,93	B.
July 5	☉ 1 L.	... ...	... ...	38,8	53,3	7,8	22,6	6 . 55 . 37,2	– 14,61	B.
	☉ 2 L.	26,9	41,1	56,0	10,5	25,1	40,0	6 . 57 . 54,7		B.
	Regulus	50,1	3,9	17,8	31,2	44,9	58,8	10 . 0 . 12,5		B.
	Jupiter 1 L. } .. (very faint)	16,3	... ...	43,4	... ...	10,8	... ...	11 . 2 . 38,0	– 0,02	B.
	Jupiter 2 L. }	... ...	32,5	... ...	59,2	... ...	26,8	11 . 2	+ 0,02	B.
	β Leonis	53,0	7,0	20,9	34,6	48,8	2,8	11 . 41 . 16,6		B.
	(*d*) Saturn 1 L.	50,7	... ...	... ...	32,9	... ...	0,9	15 . 23 . 15,1	– 7,02	B.
	Saturn 2 L.	... ...	7,6	22,1	... ...	49,8	... ...	15 . 22	+ 9,36	B.
	α Coronæ Borealis	52,8	8,1	23,1	37,9	53,2	8,5	15 . 28 . 23,7		B.
	α Serpentis	25,1	38,6	52,1	5,9	19,2	32,9	15 . 36 . 46,4		B.
	δ Scorpii	51,1	5,1	19,7	34,2	49,1	3,7	15 . 51 . 18,1		B.
	c^2 Scorpii	23,1	38,2	53,2	8,3	24,1	39,1	16 . 2 . 54,0		B.
	(*c*) A Ophiuchi	27,7	42,1	57,0	12,0	27,1	42,0	17 . 5 . 56,9		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.
The Transit levelled July 6, 7^h.

(*a*) Very cloudy. Wire V was written down 46,8 and is altered by a consideration of the intervals.

(*b*) Very unsteady and ill-defined.

(*c*) The preceding star.

(*d*) Confused.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
15 . 23 . 33,76 15 . 23 . 36,72		- 0,38	35,14			0,85	8,08	15 . 23 . 43,77	Saturn's center.
3 . 41 . 54,30			54,01			0,90	8,80	3 . 42 . 2,95	Venus 2 L.
4 . 26 . 29,28			29,00	38,21	9,21			4 . 26 . 37,96	Aldebaran.
13 . 16 . 32,46			32,32	41,37	9,05			13 . 16 . 41,62	Spica.
6 . 42 . 33,64 6 . 44 . 51,30		+ 0,03	42,17			1,00	10,69	6 . 43 . 53,14	☉'s center.
9 . 19 . 26,97			26,84	37,86	11,02			9 . 19 . 37,92	α Hydræ.
9 . 59 . 34,09			33,85	45,01	11,16			9 . 59 . 44,96	Regulus.
11 . 0 . 21,83 11 . 0 . 24,22			22,82					11 . 0 . 33,97	Jupiter's center.
13 . 16 . 29,46			29,35	41,64	12,29	1,02	11,73	13 . 16 . 41,64	Spica.
14 . 8 . 6,42			6,15	18,46	12,31			14 . 8 . 18,48	Arcturus.
14 . 37 . 44,84			44,52	56,96	12,44			14 . 37 . 56,87	ε Bootis.
14 . 41 . 45,69			45,61	57,87	12,26			14 . 41 . 57,96	α^2 Libræ.
6 . 50 . 47,05 6 . 53 . 3,98			55,23			0,98	12,74	6 . 52 . 8,25	☉'s center.
13 . 16 . 28,52			28,41	41,63	13,24			13 . 16 . 41,69	Spica.
14 . 8 . 5,40			5,13	18,45	13,32			14 . 8 . 18,45	Arcturus.
14 . 37 . 43,94			43,62	56,95	13,33			14 . 37 . 56,96	ε Bootis.
14 . 41 . 44,50			44,42	57,87	13,45			14 . 41 . 57,76	α^2 Libræ.
15 . 22 . 42,05 15 . 22 . 45,09			43,49					15 . 22 . 56,86	Saturn's center.
15 . 27 . 39,26			38,94	52,22	13,28			15 . 27 . 52,31	α Coronæ Bor.
15 . 36 . 6,79			6,59	19,96	13,37			15 . 36 . 19,97	α Serpentis.
15 . 50 . 35,44			35,40					15 . 50 . 48,79	δ Scorpii.
16 . 2 . 9,60			9,60					16 . 2 . 22,99	c^2 Scorpii.
16 . 19 . 47,75			47,74					16 . 20 . 1,15	☽ 1 L.
16 . 36 . 46,43			46,41					16 . 36 . 59,83	25 Scorpii.
17 . 5 . 13,20			13,18					17 . 5 . 26,62	A Ophiuchi.
17 . 27 . 14,49			14,26	27,69	13,43			17 . 27 . 27,71	α Ophiuchi.
17 . 31 . 56,73			56,59					17 . 32 . 10,05	Juno.
18 . 24 . 13,46			13,38					18 . 24 . 26,87	s^2 Clypei Sob.
4 . 5 . 4,47			4,20			1,00	13,69	4 . 5 . 18,06	Venus 2 L.
4 . 26 . 24,66			24,41	38,33	13,92			4 . 26 . 38,28	Aldebaran.
5 . 46 . 10,61			10,41	24,43	14,02			5 . 46 . 24,34	α Orionis.
6 . 17 . 6,19			5,89					6 . 17 . 19,84	Mercury 2 L.
6 . 54 . 53,33 6 . 57 . 10,61			1,68					6 . 56 . 15,66	☉'s center.
9 . 59 . 31,31			31,08	45,00	13,92			9 . 59 . 45,19	Regulus.
11 . 1 . 57,10 11 . 1 . 59,52			58,11					11 . 2 . 12,26	Jupiter's center.
11 . 40 . 34,81			34,56	48,71	14,15			11 . 40 . 48,74	β Leonis.
15 . 22 . 32,88 15 . 22 . 35,86			34,29					15 . 22 . 48,62	Saturn's center.
15 . 27 . 38,19			37,87	52,21	14,34			15 . 27 . 52,20	α Coronæ Bor.
15 . 36 . 5,74			5,54	19,95	14,41			15 . 36 . 19,88	α Serpentis.
15 . 50 . 34,43			34,39					15 . 50 . 48,74	δ Scorpii.
16 . 2 . 8,57			8,57					16 . 2 . 22,93	c^2 Scorpii.
17 . 5 . 12,11			12,09					17 . 5 . 26,49	A Ophiuchi.

Error of Collimation = + 0″,97.

Level Error = - 5″,91. From July 3 = - 5″,72.

Meridian Error from July 2 by bisection of Grantchester cross July 3, with correction - 0″,50.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
July 5	(*a*) ☽ 1 L.	47,1	2,8	18,2	33,9	50,2	6,0	17 . 22 . 21,9		B.
	α Ophiuchi	32,2	46,0	59,7	13,4	27,1	40,9	17 . 27 . 54,9		B.
	Juno	27,3	40,8	54,3	8,7	22,3	35,7	17 . 31 . 49,3		B.
										B.
July 6	Jupiter 1 L. .. (cloudy)	49,0	......	16,0	......	43,1	......	11 . 3 . 10,0	− 0,02	B.
	Jupiter 2 L.	......	5,2	......	31,8	......	59,3	11 . 2	+ 0,02	B.
	β Leonis ...... (loud wind)	51,9	5,8	19,6	33,3	47,4	1,7	11 . 41 . 15,5		B.
	ε Bootis	56,1	11,5	26,6	41,7	56,9	12,3	14 . 38 . 27,4		B.
	α^2 Libræ	1,1	14,9	28,8	42,4	56,2	10,4	14 . 42 . 24,0		B.
	(*b*) Saturn 1 L.	42,5	......	10,2	......	38,4	......	15 . 23 . 5,4	− 0,02	B.
	Saturn 2 L.	......	58,8	......	26,4	......	54,2	15 . 22	+ 0,02	B.
	α Coronæ Borealis	52,0	7,1	22,0	37,1	52,1	7,3	15 . 28 . 22,5		B.
	α Serpentis	24,1	37,7	51,1	4,9	18,2	32,0	15 . 36 . 45,4		B.
	Antares	32,5	47,1	1,9	17,0	31,8	47,0	16 . 20 . 2,2		B.
	α Herculis	21,9	35,3	49,1	3,0	17,0	31,1	17 . 7 . 44,9		B.
	☽ 1 L. ..... (cloudy and faint)	54,9	10,7	26,5	42,2	58,3	14,4	18 . 27 . 30,1		B.
	τ Sagittarii	51,8	6,9	21,9	36,9	52,3	7,8	18 . 57 . 23,1		B.
	Venus 2 L.	46,6	1,2	15,3	29,4	43,7	58,2	4 . 15 . 12,5		B.
	Aldebaran	40,6	54,8	8,9	22,4	36,7	50,7	4 . 27 . 4,8		B.
	Mars 2 L.	30,4	44,8	59,4	13,8	28,5	43,3	4 . 54 . 57,8		B.
	Rigel	49,0	2,8	16,1	29,4	43,1	56,9	5 . 7 . 10,7		B.
	α Orionis	27,9	41,6	55,0	8,7	22,1	36,0	5 . 46 . 49,8		B.
	Mercury 2 L.	57,2	11,6	26,2	40,6	55,5	10,8	6 . 36 . 25,5		B.
July 7	(*c*) ☉ 1 L.	20,7	35,4	50,1	4,3	19,2	33,9	7 . 3 . 48,8		B.
	☉ 2 L.	38,1	52,6	7,1	21,6	36,2	51,0	7 . 6 . 6,0		B.
	(*b*) Saturn 1 L.	......	......	......	15,1	......	43,1	15 . 22	− 13,96	B.
	Saturn 2 L.	......	......	4,1	......	32,2	......	15 . 23 . 0,1	− 14,00	B.
	α Coronæ Borealis	51,0	5,9	20,8	35,7	51,1	6,3	15 . 28 . 21,5		B.
	α Serpentis	23,1	36,7	50,2	3,8	17,1	30,8	15 . 36 . 44,2		B.
	α Herculis	20,9	34,4	48,3	2,1	16,0	30,0	17 . 7 . 43,9		B.
July 8	Mercury 2 L. ... (cloudy)	......	2,8	17,5	31,9	46,7	......	6 . 54	+ 7,47	B.
July 9	☉ 1 L.	30,8	45,3	59,8	14,4	29,1	43,5	7 . 11 . 58,3		B.
	☉ 2 L.	48,1	2,4	17,0	31,4	46,2	0,9	7 . 14 . 15,3		B.
	α Hydræ	39,1	52,4	6,2	19,5	33,3	47,1	9 . 20 . 0,8		B.
	Regulus	45,6	59,4	13,1	26,7	40,1	54,4	10 . 0 . 8,2		B.
	Jupiter 1 L. ... (very faint)	28,5	......	55,9	......	22,9	......	11 . 4 . 49,9	− 0,02	B.
	Jupiter 2 L.	......	44,7	......	11,6	......	39,2	11 . 4	+ 0,02	B.
	β Leonis	49,0	3,0	16,9	30,6	44,8	58,7	11 . 41 . 12,5		B.
	ε Bootis	53,1	8,3	23,4	38,6	53,9	9,7	14 . 38 . 24,3		B.
	α^2 Libræ	57,7	11,7	25,3	39,1	53,2	7,2	14 . 42 . 21,1		B.
	Saturn 1 L. ... (very faint)	16,6	......	44,3	......	12,5	......	15 . 22 . 40,5	− 0,02	B.
	Saturn 2 L.	......	33,4	......	1,3	......	29,4	15 . 22	+ 0,02	B.
	α Coronæ Borealis	48,5	3,9	18,9	33,8	49,1	4,3	15 . 28 . 19,3		B.
	α Serpentis	21,1	34,4	48,1	1,3	15,2	29,0	15 . 36 . 42,2		B.
	Antares	28,9	44,1	58,5	13,4	28,4	43,7	16 . 19 . 58,4		B.
	29 Scorpii	9,2	24,0	39,1	54,0	9,1	24,0	17 . 4 . 39,1		B.
	A.S.C. 1974	12,3	29,1	43,9	58,4	13,2	28,1	17 . 8 . 43,0		B.
	(*d*) A.S.C. 2047	46,4	0,9	16,2	31,9	47,3	3,7	17 . 41 . 18,9		B.
	A.S.C. 2083	28,9	43,4	58,1	12,2	26,7	41,1	17 . 57 . 55,8		B.
	A.S.C. 2151	30,2	44,6	59,1	12,9	27,0	41,2	18 . 28 . 54,9		B.
	Venus 2 L.	2,6	17,1	31,4	45,7	59,7	14,3	4 . 29 . 28,6		B.
	(*c*) Mars 2 L.	21,6	36,4	50,9	5,3	20,2	34,6	5 . 3 . 49,3		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.
The Transit levelled July 13, 6ʰ.

(*a*) Cloudy and limb ragged.
(*b*) Cloudy and very faint.
(*c*) Wind very noisy.
(*d*) Extremely faint.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
17 . 21 . 34,30		+ 0,03	34,30			1,00	13,69	17 . 21 . 48,71	☽ 1 L.
17 . 27 . 13,46			13,23	27,69	14,46			17 . 27 . 27,65	α Ophiuchi.
17 . 31 . 8,35			8,21					17 . 31 . 22,63	Juno.
11 . 2 . 29,50		+ 0,23	30,61			1,03	14,69	11 . 2 . 45,77	Jupiter's center.
11 . 2 . 32,12									
11 . 40 . 33,60			33,36	48,71	15,35			11 . 40 . 48,55	β Leonis.
14 . 37 . 41,78			41,46	56,92	15,46			14 . 37 . 56,78	ε Bootis.
14 . 41 . 42,54			42,47	57,85	15,38			14 . 41 . 57,79	α^2 Libræ.
15 . 22 . 24,10			25,22					15 . 22 . 40,57	Saturn's center.
15 . 22 . 26,49									
15 . 27 . 37,16			36,85	52,21	15,36			15 . 27 . 52,20	α Coronæ Bor.
15 . 36 . 4,77			4,58	19,95	15,37			15 . 36 . 19,94	α Serpentis.
16 . 19 . 17,07			17,07	32,07	15,00			16 . 19 . 32,46	Antares.
17 . 7 . 3,18			2,94	18,43	15,49			17 . 7 . 18,36	α Herculis.
18 . 26 . 42,44			42,46					18 . 26 . 57,94	☽ 1 L.
18 . 56 . 37,25			37,27					18 . 56 . 52,77	τ Sagittarii.
4 . 14 . 29,56			29,30			1,05	15,73	4 . 14 . 45,22	Venus 2 L.
4 . 26 . 22,70			22,46	38,39	15,93			4 . 26 . 38,38	Aldebaran.
4 . 54 . 14,00			13,72					4 . 54 . 29,66	Mars 2 L.
5 . 6 . 29,72			29,61	45,54	15,93			5 . 6 . 45,56	Rigel.
5 . 46 . 8,73			8,53	24,46	15,93			5 . 46 . 24,51	α Orionis.
6 . 35 . 41,05			40,76					6 . 35 . 56,78	Mercury 2 L.
7 . 3 . 4,63			21,94					7 . 4 . 28,98	⊙'s center.
7 . 5 . 21,80									
15 . 22 . 15,14			16,57					15 . 22 . 32,97	Saturn's center.
15 . 22 . 18,13									
15 . 27 . 36,05			35,74	52,20	16,46			15 . 27 . 52,15	α Coronæ Bor.
15 . 36 . 3,70			3,51	19,94	16,43			15 . 36 . 19,92	α Serpentis.
17 . 7 . 2,23			1,99	18,43	16,44			17 . 7 . 18,47	α Herculis.
6 . 54 . 32,19		+ 0,58	31,91			1,04	17,81	6 . 54 . 50,02	Mercury 2 L.
7 . 11 . 14,46			22,77					7 . 12 . 40,89	⊙'s center.
7 . 13 . 31,61									
9 . 19 . 19,78			19,69	37,84	18,15			9 . 19 . 37,90	α Hydræ.
9 . 59 . 26,79			26,59	44,99	18,40			9 . 59 . 44,83	Regulus.
11 . 4 . 9,28			10,39					11 . 4 . 28,68	Jupiter's center.
11 . 4 . 11,85									
11 . 40 . 30,78			30,55	48,68	18,13			11 . 40 . 48,86	β Leonis.
14 . 37 . 38,76			38,45	56,89	18,44			14 . 37 . 56,89	ε Bootis.
14 . 41 . 39,33			39,29	57,84	18,55			14 . 41 . 57,73	α^2 Libræ.
15 . 21 . 58,45			59,88					15 . 22 . 18,36	Saturn's center.
15 . 22 . 1,39									
15 . 27 . 33,97			33,67	52,18	18,51			15 . 27 . 52,15	α Coronæ Bor.
15 . 36 . 1,61			1,44	19,93	18,49			15 . 36 . 19,93	α Serpentis.
16 . 19 . 13,63			13,65	32,07	18,42			16 . 19 . 32,17	Antares.
17 . 3 . 54,07			54,10					17 . 4 . 12,65	29 Scorpii.
17 . 7 . 58,29			58,30					17 . 8 . 16,85	A.S.C. 1974.
17 . 40 . 32,18			32,25					17 . 40 . 50,82	A.S.C. 2047.
17 . 57 . 12,31			12,30					17 . 57 . 30,89	A.S.C. 2083.
18 . 28 . 12,84			12,81					18 . 28 . 31,42	A.S.C. 2151.
4 . 28 . 45,63			45,36			1,05	18,83	4 . 29 . 4,39	Venus 2 L.
5 . 3 . 5,47			5,19					5 . 3 . 24,24	Mars 2 L.

Error of Collimation = + 0″,97.
Level Error = – 5″,72. From Venus July 9 = – 5″,94.
Meridian Error from July 6 by bisection of Grantchester cross July 7, with correction – 0″,50.
.... from July 8 by bisection of Grantchester cross July 11, with correction – 0″,50.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
July 9	(a) β Tauri..............	......	......	29,8	45,0	0,4	15,8	5.16.30,8	– 15,27	B.
	α Orionis...... (cloudy)	25,1	38,4	51,9	......	19,3	32,9	5.46.46,2	– 0,03	B.
July 10	⊙ 1 L................	35,2	49,9	4,4	18,6	33,4	48,1	7.16. 2,7		B.
	⊙ 2 L................	52,0	6,7	21,3	35,4	50,3	5,0	7.18.19,4		B.
July 11	Arcturus............	15,3	29,6	43,9	58,2	12,3	26,8	14. 8.40,9		B.
	ε Bootis........ (cloudy)	51,3	6,4	21,8	36,4	51,8	......	14.37.....	+ 15,24	B.
	A.S.C. 2083 ..... (faint)	27,1	41,6	55,8	10,2	24,6	39,3	17.57.53,6		B.
	(b) ⁎ N.P.D. 107°. 22'....	18,0	31,7	46,1	0,2	14,1	28,2	18.27.42,1		B.
July 12	Regulus	42,7	56,3	10,1	23,5	37,6	51,6	10. 0. 5,3		B.
	Jupiter 1 L. .(cloudy & faint)	11,7	......	......	......	5,9	......	11. 6.33,0	– 4,55	B.
	A.S.C. 2083..........	26,1	40,2	54,1	8,7	23,3	38,1	17.57.52,7		B.
	A.S.C. 2151	27,4	42,0	55,3	9,4	23,4	37,8	18.28.52,0		B.
July 13	(c) ⊙ 1 L...............	46,0	0,7	15,1	29,4	44,0	58,8	7.28.13,1		B.
	⊙ 2 L...............	2,7	17,2	31,7	46,2	0,7	15,4	7.30.30,0		B.
	Regulus	41,6	55,2	8,9	22,8	36,5	50,4	10. 0. 4,3		B.
	Arcturus.............	13,3	27,4	41,9	55,9	10,4	24,7	14. 8.39,1		B.
	α Coronæ Borealis.....	44,6	59,7	14,9	30,1	45,1	0,4	15.28.15,4		B.
	A Ophiuchi	19,2	34,1	49,1	4,1	18,9	34,1	17. 5.49,2		B.
	A.S.C. 2047	41,2	56,2	12,5	28,3	43,7	59,2	17.41.15,0		B.
	(b) ⁎ N.P.D. 107°. 22'....	15,7	30,0	43,9	58,0	12,1	26,3	18.27.40,2		B.
July 14	☽ 2 L................	56,1	10,6	24,4	38,9	53,1	7,3	2. 8.21,8		B.
	α Ceti...............	46,3	59,9	13,2	26,8	40,1	53,4	2.54. 7,0		B.
July 15	Regulus..............	39,8	53,6	7,3	20,9	34,8	48,9	10. 0. 2,5		B.
	☽ 2 L................	20,1	34,7	49,4	4,3	19,0	33,8	3. 3.48,4		B.
	η Tauri...............	44,3	58,8	14,0	28,2	43,1	57,7	3.38.12,3		B.
	Mars 2 L.............	4,4	19,2	33,7	48,1	2,9	17,3	5.21.32,0		B.
	α Orionis...... (cloudy)	19,3	33,0	46,3	59,8	......	......	5.45.....	+ 20,36	B.
	Procyon .... (cloudy)	......	......	......	24,1	38,2	51,4	7.31. 5,1	– 20,25	B.
July 16	⊙ 1 L.} .... (cloudy)	53,1	7,4	21,9	36,2	51,1	5,6	7.40.20,0		B.
	⊙ 2 L.}	9,2	23,6	38,2	......	......	......	7.42.36,2	+ 10,82	B.
	Regulus	38,8	52,4	6,3	20,0	33,9	47,9	10. 0. 1,7		B.
	ε Bootis...............	46,3	1,7	16,5	31,8	47,1	2,4	14.38.17,2		B.
	α^2 Libræ............	50,8	4,6	18,5	32,2	46,1	0,4	14.42.14,4		B.
	Saturn 1 L.} ...... (faint)	31,2	......	59,0	......	27,2	......	15.21.55,1	– 0,02	B.
	Saturn 2 L.}	......	47,8	......	16,1	......	44,2	15.21.....	+ 0,02	B.
	α Coronæ Borealis.....	41,9	57,0	12,1	27,1	42,1	57,4	15.28.12,3		B.
	α Serpentis............	14,0	27,5	41,1	54,4	8,2	22,1	15.36.35,3		B.
	i Scorpii	15,7	30,4	45,2	59,9	15,0	29,9	16.20.44,3		B.
	A Ophiuchi	16,6	31,2	46,1	1,0	16,2	31,1	17. 5.46,0		B.
	(d) Juno.................	36,2	49,7	3,2	16,6	30,3	44,1	17.23.57,4		B.
	A.S.C. 2047..........	38,2	54,0	9,9	24,9	40,6	56,5	17.41.12,2		B.
	A.S.C. 2083..........	21,8	36,4	51,1	5,3	20,0	34,4	17.57.48,9		B.
	(b) ⁎ N.P.D. 107°. 22'....	12,7	27,1	41,2	55,1	9,0	23,3	18.27.38,0		B.
	α Orionis...........	18,3	32,0	45,4	58,9	13,0	26,2	5.46.39,5		B.
July 17	(e) ⊙ 1 L................	......	......	23,2	37,6	52,5	6,8	7.44.21,3	– 14,44	B.
	⊙ 2 L...............	10,9	25,0	39,4	53,7	8,8	23,0	7.46.37,4		B.
	Regulus..............	37,8	51,4	5,2	18,7	32,6	46,7	10. 0. 0,5		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.

(*a*) Cloudy and wind loud.
(*b*) Observed by mistake for A.S.C. 2151.
(*c*) Uneven limbs and much motion.
(*d*) Faint and unsatisfactory: little better than a guess.
(*e*) Hurried.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
5 . 15 . 45,09		+0,58	44,77	3,81	19,04	1,05	18,83	5 . 16 . 3,83	β Tauri.
5 . 46 . 5,60			5,41	24,52	19,11			5 . 46 . 24,49	α Orionis.
7 . 15 . 18,90			27,04					7 . 16 . 46,19	⊙'s center.
7 . 17 . 35,73									
14 . 7 . 58,15			57,88	18,38	20,50	1,06	19,83	14 . 8 . 18,33	Arcturus.
14 . 37 . 36,78			36,46	56,87	20,41			14 . 37 . 56,94	ε Bootis.
17 . 57 . 10,31			10,30					17 . 57 . 30,92	A.S.C. 2083.
18 . 27 . 0,05			0,00					18 . 27 . 20,65	∗N.P.D. 107°.22′.
9 . 59 . 23,87			23,66	44,99	21,33		20,89	9 . 59 . 44,99	Regulus.
11 . 5 . 52,32			52,13			1,02	20,90	11 . 6 . 13,50	Jupiter 1 L.
17 . 57 . 9,03			9,02					17 . 57 . 30,68	A.S.C. 2083.
18 . 28 . 9,62			9,58					18 . 28 . 31,26	A.S.C. 2151.
7 . 27 . 29,59			37,65			0,96	21,92	7 . 28 . 59,87	⊙'s center.
7 . 29 . 46,27									
9 . 59 . 22,81			22,60	44,99	22,39			9 . 59 . 44,92	Regulus.
14 . 7 . 56,10			55,83	18,35	22,52			14 . 8 . 18,31	Arcturus.
15 . 27 . 30,02			29,71	52,14	22,43			15 . 27 . 52,25	α Coronæ Bor.
17 . 5 . 4,10			4,12					17 . 5 . 26,72	A Ophiuchi.
17 . 40 . 28,02			28,09					17 . 40 . 50,71	A.S.C. 2047.
18 . 26 . 58,03			57,99					18 . 27 . 20,65	∗N.P.D. 107°.22′.
2 . 7 . 38,89		− 0,33	38,62			0,98	23,66	2 . 8 . 2,37	☽ 2 L.
2 . 53 . 26,67			26,46	50,17	23,71			2 . 53 . 50,24	α Ceti.
9 . 59 . 21,11			20,86	44,98	24,12			9 . 59 . 44,93	Regulus.
3 . 3 . 4,24			3,94			0,94	24,77	3 . 3 . 28,83	☽ 2 L.
3 . 37 . 28,35			28,02					3 . 37 . 52,93	η Tauri.
5 . 20 . 48,23			47,92					5 . 21 . 12,90	Mars 2 L.
5 . 45 . 59,96			59,72	24,65	24,93			5 . 46 . 24,72	α Orionis.
7 . 30 . 24,45			24,23	49,34	25,11			7 . 30 . 49,29	Procyon.
7 . 39 . 36,47			44,25					7 . 41 . 9,32	⊙'s center.
7 . 41 . 52,62									
9 . 59 . 20,14			19,89	44,98	25,09			9 . 59 . 45,05	Regulus.
14 . 37 . 31,85			31,50	56,80	25,30			14 . 37 . 56,84	ε Bootis.
14 . 41 . 32,43			32,32	57,78	25,46			14 . 41 . 57,66	α^2 Libræ.
15 . 21 . 13,10			14,48					15 . 21 . 39,85	Saturn's center.
15 . 21 . 16,05									
15 . 27 . 27,13			26,79	52,10	25,31			15 . 27 . 52,16	α Coronæ Bor.
15 . 35 . 54,66			54,43	19,88	25,45			15 . 36 . 19,81	α Serpentis.
16 . 20 . 0,06			0,01					16 . 20 . 25,42	i Scorpii.
17 . 5 . 1,17			1,13					17 . 5 . 26,57	A Ophiuchi.
17 . 23 . 16,79			16,63					17 . 23 . 42,08	Juno.
17 . 40 . 25,19			25,18					17 . 40 . 50,64	A.S.C. 2047.
17 . 57 . 5,42			5,35					17 . 57 . 30,82	A.S.C. 2083.
18 . 26 . 55,20			55,10					18 . 27 . 20,59	∗N.P.D. 107°.22′.
5 . 45 . 59,05			58,81	24,67	25,86	0,90	25,61	5 . 46 . 24,64	α Orionis.
7 . 43 . 37,84			45,64					7 . 45 . 11,54	⊙'s center.
7 . 45 . 54,03									
9 . 59 . 18,99			18,74	44,98	26,24			9 . 59 . 44,72	Regulus.

Error of Collimation = + 0″,97.

Level Error = − 5″,94.

Meridian Error from July 14 by bisection of Grantchester cross July 16, with correction − 0″,50.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
July 17	(*a*) Antares..............	21,0	36,7	51,3	5,9	21,0	36,3	16 . 19 . 50,8		B.
July 18	(*b*) Jupiter 1 L...........	46,5	......	14,0	......	41,3	......	11 . 10 . 8,2	– 0,02	B.
	Jupiter 2 L...........	......	1,9	......	29,5	......	56,6	11 . 9	+ 0,02	B.
	β Leonis.............	40,1	54,0	7,7	21,4	35,5	49,8	11 . 41 . 4,1		B.
	ε Bootis.............	44,7	59,6	14,9	30,0	45,1	0,4	14 . 38 . 15,7		B.
	α Coronæ Borealis.....	40,0	55,1	10,2	25,0	40,1	55,4	15 . 28 . 11,0		B.
	α Serpentis...........	12,6	26,0	39,3	52,8	6,4	20,3	15 . 36 . 34,0		B.
	Procyon.............	40,9	54,4	8,1	21,4	35,1	48,9	7 . 31 . 2,4		B.
July 19	⊙ 1 L...............	55,9	10,2	24,9	39,0	53,4	8,1	7 . 52 . 22,6		B.
	⊙ 2 L...............	11,7	26,0	40,3	54,9	9,3	24,0	7 . 54 . 38,2		B.
	Mercury 1 L.. (cloudy)	......	59,0	13,5	27,8	42,7	57,1	8 . 25	+ 0,03	B.
	Rigel...............	36,1	49,8	3,4	......	30,9	44,3	5 . 6 . 58,1	– 0,03	B.
	Venus 2 L....(cloudy and nnsteady)	......	......	......	33,9	48,5	3,4	5 . 18 . 17,5	– 21,73	B.
	(*c*) δ Ursæ Minoris SP...	......	......	......	......	......	......	6 . 35 . 29,6	– 11 . 17,19	B.
	Pollux...............	9,8	24,9	40,1	55,2	10,9	26,1	7 . 35 . 41,0		B.
July 20	⊙ 1 L...............	55,7	10,1	24,3	38,8	53,1	8,0	7 . 56 . 22,1		B.
	⊙ 2 L...............	11,3	25,9	40,0	54,2	9,0	23,3	7 . 58 . 37,8		B.
	Mercury 1 L... (cloudy)	......	......	......	48,1	2,8	17,4	8 . 34 . 32,0	– 21,65	B.
	Jupiter 1 L. (cloudy & faint)	0,6	......	27,9	......	55,0	......	11 . 11 . 22,0	– 0,02	B.
	Jupiter 2 L. (cloudy & faint)	......	16,5	......	43,4	......	10,9	11 . 11	+ 0,02	B.
	ε Bootis.............	42,1	57,4	12,8	27,7	43,2	58,2	14 . 38 . 13,4		B.
	(*d*) Saturn 1 L...........	13,4	......	41,3	......	9,7	......	15 . 21 . 37,9	– 0,02	B.
	Saturn 2 L...........	......	30,1	......	58,2	......	27,1	15 . 21	+ 0,02	B.
	α Herculis...........	7,7	21,8	35,1	49,2	3,2	17,1	17 . 7 . 31,1		B.
	α Ophiuchi...........	17,1	31,1	44,8	58,3	12,2	26,0	17 . 27 . 40,1		B.
	δ Ursæ Minoris.......	13. 3,7	16.48,5	20.33,2	24.17,6	28. 6,3	31.51,8	18 . 35 . 37,4		B.
July 21	⊙ 1 L...............	54,9	9,3	23,7	38,2	52,3	7,0	8 . 0 . 21,2		B.
	⊙ 2 L...............	10,2	24,7	39,1	53,1	7,7	22,1	8 . 2 . 36,4		B.
	δ Ophiuchi...........	43,3	56,9	10,2	23,5	37,2	50,8	16 . 6 . 4,2		B.
	Antares..............	17,1	31,9	47,1	1,7	16,2	31,3	16 . 19 . 46,3		B.
										B.
July 22	Venus 2 L.	47,6	2,3	16,7	30,9	45,4	0,3	5 . 33 . 14,8		B.
July 23	⊙ 1 L...............	51,7	6,0	19,8	34,2	49,0	3,8	8 . 8 . 17,9		B.
	⊙ 2 L...............	6,5	21,2	35,3	49,1	3,9	18,1	8 . 10 . 32,8		B.
	Venus 2 L.. (very cloudy)	......	2,9	17,3	31,7	44,9	......	5 . 38 . 15,5	– 2,87	B.
	Mars 2 L............	33,3	47,5	2,4	16,7	31,3	46,4	5 . 45 . 1,3		B.
July 24	α Coronæ Borealis.....	33,1	48,0	3,2	18,1	33,4	48,8	15 . 28 . 4,1		B.
	α Serpentis...........	5,8	19,1	32,6	46,1	59,8	13,6	15 . 36 . 26,8		B.
	30 Scorpii........ (faint)	0,3	15,1	30,0	45,2	0,3	15,7	17 . 6 . 30,5		B.
	α Ophiuchi...........	12,7	26,3	40,1	53,9	8,1	22,0	17 . 27 . 35,4		B.
July 25	Venus 2 L.	51,6	6,4	20,7	35,3	49,8	4,6	5 . 48 . 19,2		B.
July 26	⊙ 1 L...............	41,9	56,1	10,4	24,7	39,0	53,4	8 . 20 . 7,8		B.
	⊙ 2 L...............	56,3	10,6	25,0	39,1	53,4	8,0	8 . 22 . 22,2		B.
	α Orionis............	8,0	21,4	34,8	48,2	2,0	15,8	5 . 46 . 29,2		B.
	Mars 2 L............	18,8	33,3	47,7	2,6	17,4	32,4	5 . 53 . 47,3		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.
The Transit levelled July 20, 2^h, and July 28, 7^h.

(*a*) A large unsteady blaze.
(*b*) Extremely faint.
(*c*) Seen with great difficulty.
(*d*) Scarcely visible enough for observing.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
16 . 19 . 6,15		- 0,33	6,11	32,03	25,92	0,90	25,61	16 . 19 . 32,33	Antares.
11 . 9 . 27,48 11 . 9 . 29,35		- 0,56	28,14					11 . 9 . 55,14	Jupiter's center.
11 . 40 . 21,80			21,48	48,61	27,13			11 . 40 . 48,50	β Leonis.
14 . 37 . 30,05			29,64	56,78	27,14			14 . 37 . 56,79	ϵ Bootis.
15 . 27 . 25,26			24,86	52,08	27,22			15 . 27 . 52,05	α Coronæ Bor.
15 . 35 . 53,06			52,79	19,87	27,08			15 . 36 . 19,98	α Serpentis.
7 . 30 . 21,60			21,33	49,37	28,04	1,04	27,71	7 . 30 . 49,37	Procyon.
7 . 51 . 39,16 7 . 53 . 54,91			46,68					7 . 53 . 14,73	⊙'s center.
8 . 25 . 28,05			27,69					8 . 25 . 55,76	Mercury 1 L.
5 . 6 . 17,07			16,89	45,84	28,95	1,06	28,70	5 . 6 . 45,82	Rigel.
5 . 17 . 34,09			33,73					5 . 18 . 2,66	Venus 2 L.
6 . 24 . 12,41	16,96		16,55	44,02	27,47			18 . 24 . 45,53	δ Ursæ Min. SP.
7 . 34 . 55,43			55,01	24,11	29,10			7 . 35 . 24,05	Pollux.
7 . 55 . 38,88 7 . 57 . 54,50			46,33					7 . 57 . 15,38	⊙'s center.
8 . 33 . 48,42			48,06					8 . 34 . 17,14	Mercury 1 L.
11 . 10 . 41,35 11 . 10 . 43,62			42,22					11 . 11 . 11,41	Jupiter's center.
14 . 37 . 27,83			27,42	56,75	29,33			14 . 37 . 56,76	ϵ Bootis.
15 . 20 . 55,55 15 . 20 . 58,49			56,88					15 . 21 . 26,25	Saturn's center.
17 . 6 . 49,32			49,00	18,39	29,39			17 . 7 . 18,45	α Herculis.
17 . 26 . 58,52			58,22	27,69	29,47			17 . 27 . 27,69	α Ophiuchi.
18 . 24 . 19,79	14,69		15,04	43,90	28,86			18 . 24 . 44,55	δ Ursæ Minoris.
7 . 59 . 38,09 8 . 1 . 53,33			45,35			1,11	29,79	8 . 1 . 15,53	⊙'s center.
16 . 5 . 23,73			23,43	54,08	30,65			16 . 5 . 53,96	δ Ophiuchi.
16 . 19 . 1,65			1,58	32,01	30,43			16 . 19 . 32,12	Antares.
5 . 32 . 31,14			30,78			1,10	32,05	5 . 33 . 3,08	Venus 2 L.
8 . 7 . 34,63 8 . 9 . 49,56			41,75					8 . 9 . 14,17	⊙'s center.
5 . 37 . 31,59			31,25				33,15	5 . 38 . 4,66	Venus 2 L.
5 . 44 . 16,99			16,63					5 . 44 . 50,04	Mars 2 L.
15 . 27 . 18,39			18,01	52,00	33,99			15 . 27 . 51,87	α Coronæ Bor.
15 . 35 . 46,26			46,00	19,81	33,81			15 . 36 . 19,86	α Serpentis.
17 . 5 . 45,30			45,24					17 . 6 . 19,17	30 Scorpii.
17 . 26 . 54,07			53,79	27,67	33,88			17 . 27 . 27,74	α Ophiuchi.
5 . 47 . 35,37		- 0,34	35,04			1,16	35,21	5 . 48 . 10,53	Venus 2 L.
8 . 19 . 24,76 8 . 21 . 39,23			31,68					8 . 21 . 7,29	⊙'s center.
5 . 45 . 48,49			48,24	24,90	36,66	1,19	36,37	5 . 46 . 24,90	α Orionis.
5 . 53 . 2,78			2,43					5 . 53 . 39,09	Mars 2 L.

Error of Collimation = + 0″,97.
Level Error = - 5″,94. From July 18 = - 6″,69. From Venus July 23 = - 6″,32.
Meridian Error by δ Ursæ Minoris SP July 19 and δ Ursæ Minoris July 20, = - 1″,17, allowing + 0s,56 for loss of clock and + 0s,11 for change of Æ. By bisection of Grantchester cross July 21 = + 0″,05. The mean is used from July 18.
Meridian Error from July 25 by bisection of Grantchester cross July 28, with correction - 0″,50.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
July 27	⊙ 1 L.	37,4	51,9	6,1	20,3	34,5	48,9	8.24. 3,3		B.
	⊙ 2 L.	52,1	6,2	20,4	34,5	48,9	3,3	8.26.17,5		B.
	α Orionis	6,9	20,2	33,5	47,2	0,7	14,3	5.46.28,1		B.
	Mars 2 L.	13,3	27,8	42,3	56,9	12,4	26,8	5.56.41,6		B.
	(a) Venus 2 L.	......	......	26,8	41,3	55,8	10,7	5.58.25,2	−14,55	B.
July 28	Jupiter 1 L. (very cloudy)	7,5	......	34,6	......	......	......	11.15.....	+27,03	B.
	Jupiter 2 L. (very cloudy)	......	23,4	......	50,5	......	......	11.15.....	+13,60	B.
	Spica	22,0	35,8	49,7	3,1	16,8	30,6	13.16.44,2		B.
	Arcturus	57,7	11,6	25,8	40,1	54,3	9,0	14. 8.23,1		B.
	ε Bootis	33,1	48,1	3,5	18,7	33,8	49,1	14.38. 4,2		B.
	30 Scorpii (faint)	56,1	11,2	26,1	40,8	56,1	11,1	17. 6.26,2		B.
	α Ophiuchi	8,1	22,1	35,9	49,3	3,1	17,1	17.27.30,8		B.
July 29	☽ 1 L.	42,9	57,4	11,6	25,7	40,0	54,5	14.10. 9,0		B.
	ε Bootis	32,0	47,0	2,2	17,4	32,5	48,2	14.38. 3,1		B.
	α^2 Libræ	36,4	50,2	4,1	17,9	32,1	46,1	14.42. 0,1		B.
July 30	Spica	19,9	33,7	47,2	1,1	14,8	28,3	13.16.42,0		B.
July 31	⊙ 2 L. (very cloudy)	27,7	42,0	56,1	10,2	24,1	38,7	8.41.52,5		B.
	ε Bootis	29,7	45,0	0,1	15,2	30,4	45,8	14.38. 1,0		B.
	α^2 Libræ	34,3	48,2	2,3	16,1	29,9	43,9	14.41.57,8		B.
	α Serpentis	57,7	11,2	24,7	38,2	51,9	5,4	15.36.18,9		B.
	30 Scorpii	52,9	7,7	22,6	37,4	52,2	8,1	17. 6.22,7		B.
	α Ophiuchi	5,1	18,6	32,1	45,9	59,8	13,9	17.27.27,5		B.
	A.S.C. 2151	6,9	21,1	35,2	49,3	3,2	17,1	18.28.30,9		B.
	Venus 2 L.	15,7	30,6	44,9	59,7	14,5	29,2	6.18.43,6		B.
Aug. 2	α Coronæ Borealis	22,9	38,1	53,1	8,2	23,3	38,5	15.27.53,5		B.
	α Serpentis	55,5	9,1	22,4	35,9	49,6	3,1	15.36.16,8		B.
	30 Scorpii	50,2	5,2	20,3	35,1	50,2	5,7	17. 6.20,3		B.
	d Ophiuchi	23,8	49,2	4,7	20,2	35,6	51,3	17.17. 7,1		B.
	α Ophiuchi	2,8	16,1	30,1	44,1	57,6	11,3	17.27.25,1		B.
	3 Sagittarii	56,0	10,9	25,9	41,2	56,4	11,9	17.37.27,2		B.
	(b) ☽ 1 L.	46,3	2,1	17,2	33,5	50,1	6,0	17.55.21,8		B.
	δ Sagittarii	10,3	26,1	41,2	56,8	12,3	28,3	18.10.43,4		B.
	(c) φ Sagittarii	7,3	22,4	37,2	52,3	6,9	22,2	18.35.37,2		B.
	Venus 2 L. (cloudy and faint)	......	......	56,7	11,3	25,7	40,2	6.28.55,3	−14,57	B.
	Castor	......	......	......	31,7	47,7	3,9	7.24.20,0	−23,84	B.
	Pollux	54,2	9,6	24,7	39,9	55,2	10,9	7.35.26,0		B.
Aug. 3	⊙ 1 L.	49,7	3,8	17,9	31,7	46,1	0,3	8.51.14,5		B.
	⊙ 2 L.	2,9	16,8	30,9	44,9	59,1	13,4	8.53.27,5		B.
	(d) Mercury 1 L.	56,0	9,7	23,2	37,1	50,9	......	10.12.....	+13,83	B.
Aug. 4	☽ 1 L.	5,8	21,1	36,9	52,0	7,8	23,0	20. 6.38,6		B.
	ψ Capricorni	2,2	17,4	32,4	47,5	2,4	16,9	20.36.31,7		B.
Aug. 5	α Herculis	49,7	3,3	17,2	31,1	44,8	59,1	17. 7.12,9		B.
	α Ophiuchi	58,9	12,7	26,6	40,2	54,0	7,9	17.27.21,9		B.
	3 Sagittarii	52,1	7,6	22,6	37,8	53,1	8,3	17.37.23,7		B.
	δ Sagittarii	7,1	22,3	37,9	53,3	9,2	24,5	18.10.40,1		B.
	φ Sagittarii	3,1	18,2	32,9	48,1	3,1	18,3	18.35.33,2		B.
	α Aquilæ	27,9	41,1	54,9	8,3	22,1	35,9	19.42.49,2		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.
The Transit levelled Aug. 6, 7^h.

(*a*) Hurried.
(*b*) Uneven and very unsteady.
(*c*) The apparent Æ does not agree with that from the observation of Aug. 5.
(*d*) Very cloudy and unsteady.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0^h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
8 . 23 . 20,34		– 0,34	27,21			1,19	36,37	8 . 25 . 4,00	⊙'s center.
8 . 25 . 34,70									
5 . 45 . 47,27			47,02	24,93	37,91	1,22	37,61	5 . 46 . 24,92	α Orionis.
5 . 55 . 57,30			56,95					5 . 56 . 34,86	Mars 2 L.
5 . 57 . 41,41			41,08					5 . 58 . 18,99	Venus 2 L.
11 . 15 . 48,08			49,07					11 . 16 . 27,25	Jupiter's center.
11 . 15 . 50,55									
13 . 16 . 3,17			3,02	41,39	38,37			13 . 16 . 41,30	Spica.
14 . 7 . 40,22			39,90	18,17	38,27			14 . 8 . 18,22	Arcturus.
14 . 37 . 18,65			18,27	56,63	38,36			14 . 37 . 56,62	ε Bootis.
17 . 5 . 41,08			41,04					17 . 6 . 19,52	30 Scorpii.
17 . 26 . 49,49			49,22	27,64	38,42			17 . 27 . 27,71	α Ophiuchi.
14 . 9 . 25,87			25,76			1,13	38,88	14 . 10 . 5,31	☽ 1 L.
14 . 37 . 17,49			17,11	56,61	39,50			14 . 37 . 56,68	ε Bootis.
14 . 41 . 18,13			18,01	57,64	39,63			14 . 41 . 57,58	α^2 Libræ.
13 . 16 . 1,00			0,85	41,37	40,52	1,04	39,94	13 . 16 . 41,36	Spica.
8 . 41 . 10,18			9,87			1,07	40,99	8 . 41 . 51,25	⊙ 2 L.
14 . 37 . 15,32			14,94	56,58	41,64			14 . 37 . 56,58	ε Bootis.
14 . 41 . 16,07			15,95	57,62	41,67			14 . 41 . 57,59	α^2 Libræ.
15 . 35 . 38,29			38,04	19,74	41,70			15 . 36 . 19,73	α Serpentis.
17 . 5 . 37,66			37,62					17 . 6 . 19,37	30 Scorpii.
17 . 26 . 46,13			45,86	27,62	41,76			17 . 27 . 27,63	α Ophiuchi.
18 . 27 . 49,10			48,99					18 . 28 . 30,80	A.S.C. 2151.
6 . 17 . 59,75			59,42				42,06	6 . 18 . 41,76	Venus 2 L.
15 . 27 . 8,23			7,85	51,87	44,02	1,09	43,25	15 . 27 . 51,80	α Coronæ Bor.
15 . 35 . 36,06			35,81	19,71	43,90			15 . 36 . 19,77	α Serpentis.
17 . 5 . 35,29			35,24					17 . 6 . 19,26	30 Scorpii.
17 . 16 . 20,27			20,24					17 . 17 . 4,27	*d* Ophiuchi.
17 . 26 . 43,87			43,59	27,60	44,01			17 . 27 . 27,63	α Ophiuchi.
17 . 36 . 41,35			41,31					17 . 37 . 25,36	3 Sagittarii.
17 . 54 . 33,86			33,82					17 . 55 . 17,88	☽ 1 L.
18 . 9 . 56,92			56,89					18 . 10 . 40,96	δ Sagittarii.
18 . 34 . 52,21			52,16					18 . 35 . 36,25	φ Sagittarii.
6 . 28 . 11,27			10,93			1,04	44,28	6 . 28 . 55,49	Venus 2 L.
7 . 23 . 31,98			31,57	16,10	44,53			7 . 24 . 16,17	Castor.
7 . 34 . 40,08			39,69	24,38	44,69			7 . 35 . 24,30	Pollux.
8 . 50 . 32,00			38,21					8 . 52 . 22,88	⊙'s center.
8 . 52 . 45,07									
10 . 11 . 37,21			36,93					10 . 12 . 21,65	Mercury 1 L.
20 . 5 . 52,17		– 0,05	52,14			1,06	45,57	20 . 6 . 38,60	☽ 1 L.
20 . 35 . 47,22			47,19					20 . 36 . 33,67	ψ Capricorni.
17 . 6 . 31,15			30,86	18,26	47,40		46,63	17 . 7 . 18,24	α Herculis.
17 . 26 . 40,31			40,04	27,58	47,54			17 . 27 . 27,44	α Ophiuchi.
17 . 36 . 37,89			37,88					17 . 37 . 25,29	3 Sagittarii.
18 . 9 . 53,48			53,48					18 . 10 . 40,91	δ Sagittarii.
18 . 34 . 48,13			48,11					18 . 35 . 35,56	φ Sagittarii.
19 . 42 . 8,49			8,24	55,73	47,49			19 . 42 . 55,74	α Aquilæ.

Error of Collimation = + 0″,97.

Level Error = – 6″,32. From Aug. 2 = – 6″,47.

Meridian Error from Aug. 4 by bisection of Grantchester cross Aug. 6, with correction – 0″,50.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Aug. 5	β Aquilæ............	56,6	10,0	23,4	37,1	50,5	4,1	19 . 47 . 18,2		B.
	η Capricorni.........	44,0	57,9	12,4	26,4	40,6	55,3	20 . 55 . 9,5		B.
	(a) ☽ 1 L................	23,2	38,0	52,7	7,5	22,3	37,8	21 . 9 . 52,3		B.
	☽ 2 L................	50,1	4,9	19,8	34,0	49,4	4,5	21 . 12 . 19,2		B.
	β Aquarii............	36,9	50,4	4,0	17,3	31,1	44,8	21 . 22 . 58,2		B.
	δ Capricorni..........	39,2	53,2	7,4	21,3	35,6	49,7	21 . 38 . 4,2		B.
	(b) Castor................	... ...	57,1	12,8	... ...	... ...	0,4	7 . 24 . 16,2	– 8,00	B.
Aug. 6	⊙ 1 L................	... ...	... ...	48,2	2,1	16,2	30,1	9 . 2 . 44,1	– 14,06	B.
	⊙ 2 L................	32,2	46,3	0,5	14,4	28,5	43,0	9 . 4 . 57,0		B.
	α Ophiuchi...........	57,9	12,1	25,7	39,2	53,1	7,1	17 . 27 . 20,8		B.
	α Aquilæ...... (blazing)	26,7	40,2	54,1	7,3	21,2	34,5	19 . 42 . 48,2		B.
	β Aquilæ............	55,9	9,2	22,7	36,0	49,4	3,2	19 . 47 . 16,8		B.
	α^2 Capricorni..........	37,1	51,2	5,1	18,8	32,2	46,1	20 . 9 . 0,1		B.
	(c) η Capricorni..........	42,9	57,0	11,2	25,2	39,9	54,1	20 . 55 . 9,0		B.
	κ Capricorni..........	8,8	22,9	37,1	51,1	5,8	19,9	21 . 33 . 34,1		B.
	δ Capricorni..........	38,2	52,2	6,2	20,3	34,2	48,6	21 . 38 . 2,9		B.
	ι Aquarii............	14,1	28,0	42,0	55,7	10,1	23,5	21 . 57 . 37,3		B.
	(d) ☽ 2 L................	36,9	51,1	5,3	19,4	34,0	48,3	22 . 12 . 2,9		B.
	σ Aquarii............	37,7	51,1	5,0	18,7	32,8	46,2	22 . 21 . 59,9		B.
	Uranus................	32,9	46,1	0,2	13,3	27,1	40,7	22 . 52 . 54,1		B.
	α Pegasi..............	14,7	28,1	42,1	56,0	9,9	24,2	22 . 56 . 37,9		B.
Aug. 7	α Herculis............	... ...	... ...	15,2	29,1	43,0	57,0	17 . 7 . 10,6	– 13,87	B.
	d Ophiuchi...........	28,2	43,1	59,2	14,3	29,7	45,2	17 . 17 . 1,1		B.
	Procyon..............	19,2	32,7	46,1	59,6	13,1	27,0	7 . 30 . 40,5		B.
Aug. 8	(e) ⊙ 1 L................	57,0	11,1	25,0	39,1	53,0	7,2	9 . 10 . 21,2		B.
	α Herculis............	46,7	0,2	14,1	28,1	42,1	55,8	17 . 7 . 9,9		B.
	α Ophiuchi...........	55,9	9,9	23,7	37,2	50,8	5,0	17 . 27 . 18,9		B.
	α Aquilæ............	24,4	38,4	52,2	5,4	19,2	32,4	19 . 42 . 45,9		B.
	β Aquilæ............	53,4	7,1	20,7	34,1	47,3	1,1	19 . 47 . 14,8		B.
	α^2 Capricorni..........	35,2	49,2	3,1	16,4	30,3	44,2	20 . 8 . 58,2		B.
	(f) β Aquarii............	34,1	47,4	1,1	14,2	27,9	41,7	21 . 22 . 54,9		B.
	ι Aquarii............	12,1	26,1	40,0	53,6	7,8	21,6	21 . 57 . 35,3		B.
	σ Aquarii............	35,8	49,9	3,3	16,8	30,2	44,1	22 . 21 . 58,2		B.
	λ Aquarii............	41,3	55,0	8,4	21,9	35,9	49,3	22 . 44 . 2,9		B.
	Uranus................	15,2	29,2	42,3	56,0	9,5	23,2	22 . 52 . 36,7		B.
Aug. 10	Mars 2 L.... (very cloudy)	... ...	... ...	... ...	16,7	31,3	45,8	6 . 37 . 0,4	– 22,06	B.
	Venus 2 L.............	22,6	36,9	51,8	6,2	20,6	35,4	7 . 9 . 49,8		B.
Aug. 11	⊙ 1 L................	18,4	32,7	46,2	0,3	14,4	28,4	9 . 21 . 42,3		B.
	⊙ 2 L................	30,3	44,3	58,2	12,1	26,1	40,3	9 . 23 . 54,3		B.
	Mercury 1 L.........	14,9	28,3	42,0	55,2	8,9	22,9	10 . 56 . 36,1		B.
	(g) Jupiter 1 L...........	42,1	... ...	9,1	... ...	36,0	... ...	11 . 26 . 3,1	– 0,02	B.
	Jupiter 2 L...........	... ...	57,6	... ...	24,3	... ...	51,5	11 . 25	+ 0,02	B.
	Arcturus.............	41,7	56,1	10,1	24,4	38,7	53,2	14 . 8 . 7,4		B.
	α^2 Libræ..............	22,0	36,1	49,9	3,7	17,8	31,9	14 . 41 . 45,8		B.
	α Herculis............	43,1	56,8	10,7	24,3	38,3	52,2	17 . 7 . 6,2		B.
	δ Ursæ Minoris.......	12.29,7	16.15,4	20. 0,5	23.44,8	27.32,6	31.22,3	18 . 35 . 7,7		B.
	α Aquilæ...... (blazing)	21,2	34,9	48,2	1,7	15,3	29,1	19 . 42 . 43,0		B.
	β Aquilæ............	50,0	3,7	17,0	30,4	43,9	58,0	19 . 47 . 11,3		B.
	α^2 Capricorni..........	32,1	45,3	59,2	13,4	27,1	40,9	20 . 8 . 54,7		B.
	κ Capricorni..........	3,1	17,1	31,6	45,8	59,9	14,4	21 . 33 . 28,8		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.
The Transit levelled Aug. 13, 6^h.

(*a*) Both limbs ragged. Correction applied to apparent Æ of 1 L for defect of illumination = $-0^s,05$.
(*b*) Cloudy and wind loud.
(*c*) Intervals not satisfactory.
(*d*) Ragged and tremulous.
(*e*) Very cloudy and very unsteady.
(*f*) A.S.C. 2460 was looked for.
(*g*) Exceedingly faint.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	
19 . 46 . 37,13		– 0,05	36,90	24,30	47,40	1,06	46,63	19 . 47 . 24,40	β Aquilæ.
20 . 54 . 26,59			26,52					20 . 55 . 14,08	η Capricorni.
21 . 9 . 7,69			7,62					21 . 9 . 55,14	☽ 1 L.
21 . 11 . 34,56			34,49					21 . 12 . 22,06	☽ 2 L.
21 . 22 . 17,53			17,37	4,87	47,50			21 . 23 . 4,95	β Aquarii.
21 . 37 . 21,51			21,42					21 . 38 . 9,00	δ Capricorni.
7 . 23 . 28,62			28,22	16,17	47,95	1,02	47,64	7 . 24 . 16,17	Castor.
9 . 2 . 2,08			} 8,02					9 . 3 . 56,04	☉'s center.
9 . 4 . 14,56									
17 . 26 . 39,42			39,15	27,57	48,42			17 . 27 . 27,53	α Ophiuchi.
19 . 42 . 7,46			7,21	55,73	48,52			19 . 42 . 55,69	α Aquilæ.
19 . 46 . 36,17			35,94	24,30	48,36			19 . 47 . 24,42	β Aquilæ.
20 . 8 . 18,66			18,54	7,04	48,50			20 . 9 . 7,04	α^2 Capricorni.
20 . 54 . 25,61			25,54					20 . 55 . 14,07	η Capricorni.
21 . 32 . 51,38			51,31					21 . 33 . 39,86	κ Capricorni.
21 . 37 . 20,37			20,28					21 . 38 . 8,84	δ Capricorni.
21 . 56 . 55,82			55,72					21 . 57 . 44,29	ι Aquarii.
22 . 11 . 19,70			19,60					22 . 12 . 8,18	☽ 2 L.
22 . 21 . 18,77			18,65					22 . 22 . 7,24	σ Aquarii.
22 . 52 . 13,49			13,34					22 . 53 . 1,95	Uranus.
22 . 55 . 56,13			55,85	44,50	48,65			22 . 56 . 44,46	α Pegasi.
17 . 6 . 29,11			28,82	18,24	49,42	1,01	48,70	17 . 7 . 18,24	α Herculis.
17 . 16 . 14,40			14,40					17 . 17 . 3,83	*d* Ophiuchi.
7 . 29 . 59,75			59,52	49,69	50,17	1,06	49,62	7 . 30 . 49,47	Procyon.
9 . 9 . 39,09			38,80					9 . 10 . 28,82	☉ 1 L.
17 . 6 . 28,13			27,84	18,23	50,39			17 . 7 . 18,21	α Herculis.
17 . 26 . 37,34			37,07	27,55	50,48			17 . 27 . 27,46	α Ophiuchi.
19 . 42 . 5,41			5,16	55,74	50,58			19 . 42 . 55,65	α Aquilæ.
19 . 46 . 34,07			33,84	24,31	50,47			19 . 47 . 24,33	β Aquilæ.
20 . 8 . 16,66			16,54	7,05	50,51			20 . 9 . 7,05	α^2 Capricorni.
21 . 22 . 14,47			14,31	4,91	50,60			21 . 23 . 4,87	β Aquarii.
21 . 56 . 53,79			53,69					21 . 57 . 44,28	ι Aquarii.
22 . 21 . 16,90			16,78					22 . 22 . 7,38	σ Aquarii.
22 . 43 . 22,10			21,95					22 . 44 . 12,57	λ Aquarii.
22 . 51 . 56,01			55,86					22 . 52 . 46,49	Uranus.
6 . 36 . 16,49		– 0,27	16,15			1,11	53,09	6 . 37 . 9,55	Mars 2 L.
7 . 9 . 6,19			5,86					7 . 9 . 59,28	Venus 2 L.
9 . 21 . 0,38			} 6,03					9 . 22 . 59,55	☉'s center.
9 . 23 . 12,23									
10 . 55 . 55,47			55,23					10 . 56 . 48,82	Mercury 1 L.
11 . 25 . 22,55			} 23,29					11 . 26 . 16,91	Jupiter's center.
11 . 25 . 24,49									
14 . 7 . 24,51			24,20	17,98	53,78			14 . 8 . 17,94	Arcturus.
14 . 41 . 3,88			3,76	57,47	53,71			14 . 41 . 57,53	α^2 Libræ.
17 . 6 . 24,51			24,23	18,19	53,96			17 . 7 . 18,11	α Herculis.
18 . 23 . 47,57			43,09	38,12	55,03			18 . 24 . 37,03	δ Ursæ Minoris.
19 . 42 . 1,91			1,67	55,74	54,07			19 . 42 . 55,67	α Aquilæ.
19 . 46 . 30,61			30,38	24,31	53,93			19 . 47 . 24,38	β Aquilæ.
20 . 8 . 13,24			13,11	7,05	53,94			20 . 9 . 7,13	α^2 Capricorni.
21 . 32 . 45,81			45,72					21 . 33 . 39,81	κ Capricorni.

Error of Collimation = + 0″,97.

Level Error = – 6″,47. From Aug. 10 = – 6″,21.

The two sets of three consecutive Transits of δ Ursæ Minoris Aug. 13—15, give for Meridian Error – 0″,38 and – 1″24, the mean of which = – 0″,81. By bisection of Grantchester cross Aug. 17 Meridian Error = + 0″,27. The mean of this and the above value is used from Aug. 10.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Aug. 11	Uranus (blur)	48,2	2,1	15,1	29,3	42,5	56,2	22 . 52 . 9,5		B.
	α Pegasi	9,3	22,9	37,1	50,7	4,4	18,2	22 . 56 . 32,1		B.
Aug. 13	⊙ 1 L.	50,1	4,0	18,0	31,7	45,8	59,9	9 . 29 . 13,9		B.
	⊙ 2 L.	1,9	15,4	29,3	43,3	57,2	11,4	9 . 31 . 25,2		B.
	ε Ursæ Minoris	......	......	......	1.54,4	3.36,3	5.17,5	17 . 6 . 57,8	– 2 . 30,41	B.
	α Ophiuchi	50,4	4,0	17,7	31,9	45,9	59,3	17 . 27 . 13,1		B.
	α Aquilæ	19,3	32,2	46,3	59,7	13,3	27,1	19 . 42 . 40,4		B.
	β Aquilæ	47,9	1,6	14,8	28,2	41,6	55,8	19 . 47 . 9,2		B.
	α^2 Capricorni	30,2	43,5	57,3	11,0	24,5	38,6	20 . 8 . 52,2		B.
	κ Capricorni	0,7	14,9	29,1	43,2	57,6	12,1	21 . 33 . 26,2		B.
	α Aquarii	54,2	8,2	21,0	34,5	48,1	1,8	21 . 57 . 15,2		B.
	Uranus	29,9	43,5	57,2	10,7	24,2	38,0	22 . 52 . 51,3		B.
	α Pegasi	7,1	21,0	34,4	48,3	2,3	16,1	22 . 56 . 30,0		B.
	☽ 2 L. (unsteady)	55,1	10,6	26,0	41,4	57,1	12,8	4 . 43 . 28,0		B.
	Rigel	9,2	22,7	36,2	49,7	3,6	17,3	5 . 6 . 30,8		B.
	β Tauri	22,7	37,1	53,1	8,4	23,7	39,1	5 . 15 . 54,4		B.
	(a) δ Ursæ Min. SP. (cloudy & faint)	......	......	......	......	......	......	6 . 34 . 53,6	– 11.17,54	B.
	Venus 2 L... (very cloudy)	42,7	57,6	......	......	40,7	......	7 . 24	+ 19,33	B.
	Pollux	42,5	57,8	13,0	28,1	43,3	58,9	7 . 35 . 14,1		B.
Aug. 14	⊙ 1 L. (cloudy)	35,1	49,1	......	......	......	44,8	9 . 32 . 58,9	– 0,07	B.
	⊙ 2 L.	46,3	0,2	14,2	28,1	43,0	56,0	9 . 35 . 10,1		B.
	ε Ursæ Minoris.. (cloudy)	......	......	......	1.54,2	3.35,3	5.16,8	17 . 6 . 56,4	– 2 . 30,41	B.
	α Ophiuchi	49,2	3,1	16,7	30,3	44,2	58,1	17 . 27 . 12,1		B.
	δ Ursæ Minoris	12.27,6	16.12,3	19.58,2	23.40,8	27.29,4	31.18,5	18 . 35 . 5,7		B.
	α Aquilæ	17,9	31,1	45,2	58,4	12,3	25,9	19 . 42 . 39,3		B.
	κ Capricorni	59,6	13,8	27,9	41,9	56,8	11,2	21 . 33 . 25,2		B.
	α Aquarii	53,4	7,1	20,3	33,5	46,9	0,6	21 . 57 . 14,2		B.
	Uranus	20,8	34,2	47,6	1,2	14,8	28,6	22 . 51 . 42,2		B.
	α Pegasi	6,1	19,7	33,5	47,3	1,4	15,4	22 . 56 . 29,3		B.
	☽ 2 L.	52,0	7,8	23,4	38,9	54,7	10,6	5 . 44 . 26,1		B.
	(a) δ Ursæ Minoris SP...	12.15,5	......	......	......	......	31. 9,7	6.........	+ 1 . 54,07	B.
	Pollux	41,8	56,6	12,2	27,1	42,4	57,8	7 . 34	+ 7,66	B.
Aug. 15	ε Ursæ Minoris	......	......	......	1.53,2	3.33,9	5.15,1	17 . 6 . 54,7	– 2 . 30,41	B.
	d Ophiuchi	19,3	35,0	50,5	5,9	21,2	36,7	17 . 16 . 52,1		B.
	α Ophiuchi	48,1	1,8	15,7	29,3	43,2	57,2	17 . 27 . 10,6		B.
	δ Ursæ Minoris	12.25,7	16.10,5	19.57,2	23.39,8	27.27,7	31.16,2	18 . 35 . 3,3		B.
	α Aquilæ	17,1	30,3	44,1	57,3	11,2	24,7	19 . 42 . 38,4		B.
	β Aquilæ	45,8	59,0	12,7	26,1	39,5	53,0	19 . 47 . 6,8		B.
	α^2 Capricorni	28,1	41,2	55,0	8,8	22,8	36,7	20 . 8 . 50,6		B.
	κ Capricorni	59,1	13,2	27,2	41,5	56,1	10,3	21 . 33 . 24,4		B.
	Uranus	11,3	25,1	38,3	52,1	6,1	19,6	22 . 51 . 33,2		B.
	α Pegasi	5,2	19,0	32,3	46,4	0,2	14,1	22 . 56 . 27,7		B.
Aug. 16	Procyon	9,6	23,2	36,6	50,1	3,6	17,1	7 . 30 . 30,7		B.
	Pollux	39,2	54,6	10,0	24,9	40,4	56,0	7 . 35 . 11,2		B.
	Venus 2 L.	1,4	15,5	30,4	44,6	59,3	14,2	7 . 40 . 28,4		B.
Aug. 17	(b) ⊙ 1 L.	47,1	1,0	14,7	28,4	42,3	56,1	9 . 44 . 10,4		B.
	⊙ 2 L.	58,0	12,0	25,8	39,4	53,2	7,1	9 . 46 . 21,3		B.
	Venus 2 L.	7,1	21,3	35,4	49,9	4,5	19,3	7 . 45 . 33,6		B.
Aug. 18	⊙ 1 L...... (very cloudy)	......	43,9	57,9	11,4	25,2	39,1	9 . 47 . 52,7	– 6,91	B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG.*

(a) Too cloudy for more wires.

(b) Very cloudy and bad to observe.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	
22 . 51 . 28,99		– 0,27	28,83			1,11	53,09	22 . 52 . 22,97	Uranus.
22 . 55 . 50,67			50,39	44,59	54,20			22 . 56 . 44,54	α Pegasi.
9 . 28 . 31,91			37,37			1,14	55,24	9 . 30 . 33,06	☉'s center.
9 . 30 . 43,38									
17 . 1 . 56,09			53,97					17 . 2 . 50,02	ε Ursæ Minoris.
17 . 26 . 31,75			31,48	27,49	56,01			17 . 27 . 27,55	α Ophiuchi.
19 . 41 . 59,76			59,52	55,73	56,21			19 . 42 . 55,69	α Aquilæ.
19 . 46 . 28,45			28,22	24,30	56,08			19 . 47 . 24,40	β Aquilæ.
20 . 8 . 11,04			10,91	7,06	56,15			20 . 9 . 7,11	α^2 Capricorni.
21 . 32 . 43,40			43,31					21 . 33 . 39,57	κ Capricorni.
21 . 56 . 34,71			34,52	30,91	56,39			21 . 57 . 30,80	α Aquarii.
22 . 52 . 10,68			10,52					22 . 53 . 6,84	Uranus.
22 . 55 . 48,46			48,18	44,62	56,44			22 . 56 . 44,51	α Pegasi.
4 . 42 . 41,57			41,21			1,10	56,44	4 . 43 . 37,87	☽ 2 L.
5 . 5 . 49,93			49,78	46,51	56,73			5 . 6 . 46,45	Rigel.
5 . 15 . 8,36			7,99	4,85	56,86			5 . 16 . 4,67	β Tauri.
6 . 23 . 36,06	40,21		40,01	37,28	57,27			18 . 24 . 36,74	δ Ursæ Min. SP.
7 . 24 . 26,33			26,00					7 . 25 . 22,78	Venus 2 L.
7 . 34 . 28,25			27,88	24,60	56,72			7 . 35 . 24,67	Pollux.
9 . 32 . 16,90			22,31					9 . 34 . 19,19	☉'s center.
9 . 34 . 28,28									
17 . 1 . 55,26			53,14					17 . 2 . 50,36	ε Ursæ Minoris.
17 . 26 . 30,52			30,25	27,48	57,23			17 . 27 . 27,49	α Ophiuchi.
18 . 23 . 44,64	39,99		40,16	37,11	56,95			18 . 24 . 37,44	δ Ursæ Minoris.
19 . 41 . 58,59			58,35	55,73	57,38			19 . 42 . 55,69	α Aquilæ.
21 . 32 . 42,34			42,25					21 . 33 . 39,68	κ Capricorni.
21 . 56 . 33,71			33,52	30,93	57,41			21 . 57 . 30,97	α Aquarii.
22 . 51 . 1,34			1,18					22 . 51 . 58,67	Uranus.
22 . 55 . 47,53			47,25	44,64	57,39			22 . 56 . 44,74	α Pegasi.
5 . 43 . 39,08			38,71			1,03	57,48	5 . 44 . 36,44	☽ 2 L.
6 . 23 . 36,67	40,82		40,62	36,92	56,30			18 . 24 . 38,37	δ Ursæ Min. SP.
7 . 34 . 27,31			26,94	24,63	57,69			7 . 35 . 24,75	Pollux.
17 . 1 . 53,81			51,69					17 . 2 . 49,90	ε Ursæ Minoris.
17 . 16 . 5,82			5,80					17 . 17 . 4,02	d Ophiuchi.
17 . 26 . 29,42			29,15	27,47	58,32			17 . 27 . 27,38	α Ophiuchi.
18 . 23 . 42,91	38,26		38,43	36,73	58,30			18 . 24 . 36,70	δ Ursæ Minoris.
19 . 41 . 57,59			57,35	55,73	58,38			19 . 42 . 55,67	α Aquilæ.
19 . 46 . 26,13			25,90	24,30	58,40			19 . 47 . 24,23	β Aquilæ.
20 . 8 . 9,03			8,90	7,06	58,16			20 . 9 . 7,24	α^2 Capricorni.
21 . 32 . 41,68			41,59					21 . 33 . 40,00	κ Capricorni.
22 . 50 . 52,24			52,08					22 . 51 . 50,54	Uranus.
22 . 55 . 46,42			46,14	44,66	58,52			22 . 56 . 44,61	α Pegasi.
7 . 29 . 50,12			49,88	49,88	60,00	1,09	59,60	7 . 30 . 49,82	Procyon.
7 . 34 . 25,19			24,79	24,67	59,88			7 . 35 . 24,73	Pollux.
7 . 39 . 44,83			44,49					7 . 40 . 44,43	Venus 2 L.
9 . 43 . 28,58			33,77					9 . 45 . 33,81	☉'s center.
9 . 45 . 39,55									
7 . 44 . 50,16			49,82				60,69	7 . 45 . 50,86	Venus 2 L.
9 . 47 . 11,46			11,17					9 . 48 . 12,30	☉ 1 L.

Error of Collimation = + 0",97.

Level Error = – 6",21. From Aug. 16 = – 6",61. This is the mean between the determinations on Aug. 13 and Aug. 30, the levelling having been inadvertently omitted in the interval.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Aug. 20	⊙ 1 L. } (clouds)	......	......	22,3	35,5	49,8	3,7	9 . 55 . 17,4	− 13,79	C.
	⊙ 2 L. }	4,7	18,3	32,3	......	......	13,6	9 . 57 . 27,3	+ 2,72	C.
Aug. 21	⊙ 1 L. } (loud wind)	36,0	47,7	3,5	17,2	......	45,0	9 . 58 . 58,8	+ 2,29	C.
	⊙ 2 L. }	46,0	59,8	13,4	27,2	41,0	54,7	10 . 1 . 8,7		C.
	(a) Mercury 1 L.	......	......	......	......	36,8	50,7	11 . 39 . 3,8	− 27,00	C.
	α^2 Capricorni	21,0	34,7	48,6	2,2	16,0	29,8	20 . 8 . 43,7		C.
	β Aquarii	19,6	33,3	46,7	0,0	13,6	27,4	21 . 22 . 40,8		C.
	α Aquarii	46,0	59,2	12,7	26,0	39,6	53,1	21 . 57 . 6,6		C.
	Uranus	14,0	27,6	41,1	54,6	8,4	22,0	22 . 50 . 35,6		C.
	α Pegasi	58,5	12,3	26,1	40,0	53,8	7,9	22 . 56 . 21,5		C.
Aug. 22	(b) ⊙ 1 L.	17,3	30,5	44,6	58,3	12,2	26,0	10 . 2	+ 6,90	C.
	α Aquilæ	9,4	23,1	36,6	50,0	3,7	17,3	19 . 42 . 31,0		C.
	β Aquilæ	38,4	51,8	5,2	18,7	32,2	46,0	19 . 46 . 59,2		C.
	(a) α^2 Capricorni	......	34,0	47,6	1,4	15,2	29,0	20 . 8 . 42,8	− 6,89	C.
	α Aquarii	45,2	58,7	11,8	25,2	38,6	52,4	21 . 57 . 5,8		G.
	Procyon (cloud)	3,6	......	30,5	43,8	57,5	11,0	7 . 30 . 24,7	− 4,50	C.
	Pollux (cloudy)	......	48,5	3,8	19,0	34,3	49,8	7 . 34	+ 0,03	C.
	(c) Venus 2 L.	......	......	56,0	10,2	24,6	......	8 . 10	+ 0,09	C.
Aug. 23	(d) Mercury 1 L. (clouds)	......	......	58,6	11,8	25,4	38,8	11 . 46 . 52,3	− 13,46	C.
	α Aquilæ	8,5	21,9	35,5	49,0	2,7	16,4	19 . 43	+ 6,81	C.
	β Aquilæ	......	......	......	17,5	30,9	44,8	19 . 47 . 58,3	− 20,25	C.
	α Pegasi	56,5	10,6	24,4	38,0	51,8	6,0	22 . 57 . 19,8		C.
	Procyon	2,4	16,0	29,3	42,8	56,5	10,1	7 . 31 . 23,4		C.
	Pollux	32,1	47,3	2,7	17,8	33,2	48,5	7 . 36 . 3,9		C.
	Venus 2 L.	29,7	44,0	58,2	12,5	26,9	41,4	8 . 16 . 55,7		C.
Aug. 24	α Aquilæ	7,4	21,0	34,3	47,8	1,6	15,3	19 . 43 . 29,0		C.
	β Aquilæ	36,0	49,5	3,0	16,4	30,0	43,8	19 . 47 . 57,2		C.
	α Aquarii	43,0	56,2	9,7	23,0	36,7	50,3	21 . 58 . 3,7		C.
	Uranus	44,9	58,6	12,0	25,4	39,2	52,8	22 . 51 . 6,4		C.
	α Pegasi	55,5	9,5	23,3	37,0	51,1	4,8	22 . 57 . 18,7		C.
	Procyon	1,5	14,7	28,3	41,5	55,3	8,9	7 . 31 . 22,5		C.
	Pollux	......	46,6	1,8	16,5	32,1	47,4	7 . 36 . 2,5	− 7,63	C.
	Venus 2 L.	31,4	45,7	0,0	13,9	28,8	43,3	8 . 21 . 57,0		C.
Aug. 25	(e) ⊙ 1 L.	......	......	......	58,6	12,3	26,4	10 . 14 . 39,8	− 20,57	C.
	⊙ 2 L.	26,8	40,6	54,2	......	21,7	35,6	10 . 16 . 49,3	− 0,03	C.
Aug. 26	☽ 1 L.	57,2	11,7	26,3	40,7	55,4	10,4	14 . 40 . 25,0		C.
	Procyon	59,3	12,6	26,0	39,5	53,0	6,8	7 . 31 . 20,3		C.
Aug. 27	⊙ 1 L. } (cloudy and tremulous)	35,4	49,6	2,7	16,4	30,3	44,0	10 . 21 . 57,6		C.
	⊙ 2 L. }	......	......	......	25,4	39,3	53,0	10 . 24 . 6,8	− 20,52	C.
	(f) ☽ 1 L.	......	12,4	27,6	42,4	57,7	12,8	15 . 31 . 27,8	− 7,55	C.
	β Aquarii	13,4	26,9	40,3	53,7	7,4	21,2	21 . 23 . 34,4		C.
	α Aquarii	39,6	53,0	6,3	19,7	33,3	47,0	21 . 58 . 0,3		C.
Aug. 28	(g) ⊙ 1 L.	......	......	......	......	8,4	21,9	10 . 25 . 35,5	− 27,39	C.
	⊙ 2 L.	22,7	36,3	50,0	3,4	17,3	31,3	10 . 27 . 45,0		C.
	α Aquilæ	2,6	16,2	29,7	43,2	57,0	10,5	19 . 43 . 24,3		C.
	(h) β Aquilæ	31,4	45,0	58,6	12,1	25,5	39,0	19 . 47 . 52,5		C.
	Uranus (cloudy)	......	......	......	45,5	59,0	12,8	22 . 50 . 26,3	− 20,37	C.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.
Aug. 23, 0^h. Clock put forward 1^m.
Aug. 30, 7^h. Transit twice levelled with the Telescope in different positions.

(a) Hurried. The seconds were not taken from the clock, and have been altered by the difference between the counting and the clock at the end of the observations.
(b) Extremely cloudy and wind very loud.
(c) Cloudy and very doubtful. Seconds not taken from clock.
(d) Confused. Counting found 30^s in error.
(e) Very cloudy and perplexing: continually shifting dark glasses.
(f) Indistinct and hazy: hid at first wire by clouds.
(g) 1 L cloudy, the other very tremulous.
(h) So misty the star was scarcely visible.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
9 . 54 . 35,95 9 . 56 . 45,96		– 0,27	40,67			0,92	63,24	9 . 56 . 44,29	☉'s center.
9 . 58 . 16,99 10 . 0 . 27,26		– 0,28	21,85				64,16	10 . 0 . 26,39	☉'s center.
11 . 38 . 23,43			23,22					11 . 39 . 27,83	Mercury 1 L.
20 . 8 . 2,28			2,14	7,06	64,92			20 . 9 . 7,07	α^2 Capricorni.
21 . 22 . 0,20			0,02	5,01	64,99			21 . 23 . 5,00	β Aquarii.
21 . 56 . 26,17			25,96	30,99	65,03			21 . 57 . 30,96	α Aquarii.
22 . 49 . 54,76			54,59					22 . 50 . 59,63	Uranus.
22 . 55 . 40,01			39,71	44,74	65,03			22 . 56 . 44,75	α Pegasi.
10 . 1 . 58,38			58,10			0,97	64,96	10 . 3 . 3,46	☉ 1 L.
19 . 41 . 50,15			49,89	55,70	65,81			19 . 42 . 55,65	α Aquilæ.
19 . 46 . 18,79			18,54	24,27	65,73			19 . 47 . 24,30	β Aquilæ.
20 . 8 . 1,44			1,30	7,06	65,76			20 . 9 . 7,07	α^2 Capricorni.
21 . 56 . 25,39			25,18	31,00	65,82			21 . 57 . 31,03	α Aquarii.
7 . 29 . 44,02			43,78	50,01	66,23	1,06	65,91	7 . 30 . 50,02	Procyon.
7 . 34 . 19,11			18,71	24,82	66,11			7 . 35 . 24,96	Pollux.
8 . 10 . 10,36			10,02					8 . 11 . 16,30	Venus 2 L.
11 . 46 . 11,92			11,71				5,91	11 . 46 . 18,14	Mercury 1 L.
19 . 42 . 49,14			48,88	55,70	6,82			19 . 42 . 55,66	α Aquilæ.
19 . 47 . 17,62			17,37	24,27	6,90			19 . 47 . 24,15	β Aquilæ.
22 . 56 . 38,16			37,86	44,76	6,90			22 . 56 . 44,78	α Pegasi.
7 . 30 . 42,93			42,69	50,03	7,34	1,12	6,97	7 . 30 . 50,01	Procyon.
7 . 35 . 17,93			17,53	24,84	7,31			7 . 35 . 24,85	Pollux.
8 . 16 . 12,63			12,29					8 . 16 . 19,65	Venus 2 L.
19 . 42 . 48,06			47,80	55,69	7,89			19 . 42 . 55,69	α Aquilæ.
19 . 47 . 16,56			16,31	24,26	7,95			19 . 47 . 24,20	β Aquilæ.
21 . 57 . 23,23			23,02	31,02	8,00			21 . 57 . 31,01	α Aquarii.
22 . 50 . 25,61			25,44					22 . 50 . 33,47	Uranus.
22 . 56 . 37,13			36,83	44,78	7,95			22 . 56 . 44,87	α Pegasi.
7 . 30 . 41,81			41,57	50,06	8,49	1,14	8,11	7 . 30 . 50,04	Procyon.
7 . 35 . 16,85			16,45	24,87	8,42			7 . 35 . 24,92	Pollux.
8 . 21 . 14,30			13,96					8 . 21 . 22,47	Venus 2 L.
10 . 13 . 58,70 10 . 16 . 8,00			3,07					10 . 15 . 11,67	☉'s center.
14 . 39 . 40,95			40,85			1,17	9,19	14 . 39 . 50,75	☽ 1 L.
7 . 30 . 39,65			39,39	50,10	10,71		10,36	7 . 30 . 50,12	Procyon.
10 . 21 . 16,57 10 . 23 . 25,60			20,80					10 . 22 . 31,67	☉'s center.
15 . 30 . 42,57			42,50					15 . 30 . 53,61	☽ 1 L.
21 . 22 . 53,90			53,71	5,03	11,32			21 . 23 . 5,11	β Aquarii.
21 . 57 . 19,89			19,66	31,04	11,38			21 . 57 . 31,09	α Aquarii.
10 . 24 . 54,54 10 . 27 . 3,71			58,84			1,18	11,61	10 . 26 . 10,96	☉'s center.
19 . 42 . 43,36			43,08	55,67	12,59			19 . 42 . 55,66	α Aquilæ.
19 . 47 . 12,01			11,74	24,24	12,50			19 . 47 . 24,33	β Aquilæ.
22 . 49 . 45,53			45,34					22 . 49 . 58,07	Uranus.

Error of Collimation = + 0″,97.

Level Error = – 6″,61. From Aug. 26 = – 7″,01.

Meridian Error from Aug. 21 by bisection of Grantchester cross Aug. 25, with correction – 0″,50.

Month and Day.	NAME OF STAR or PLANET; and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Aug. 28	α Pegasi....... (cloudy)	51,0	4,8	18,6	......	......	......	22 . 57	+ 27,73	C.
Aug. 29	θ Ophiuchi.... (unsteady)	......	......	......	53,2	8,2	23,0	17 . 12 . 37,6	- 22,21	C.
	☽ 1 L.... (ragged and waving)	8,7	24,5	40,4	56,2	12,0	28,0	17 . 26 . 43,8		C.
	γ^2 Sagittarii..........	27,1	42,6	58,2	13,7	29,5	45,1	17 . 56 . 0,8		C.
	(a) δ Sagittarii..........	40,7	56,4	11,3	27,0	42,5	58,1	18 . 11 . 13,3		C.
	β Aquarii............	10,9	24,3	37,7	51,2	4,8	18,6	21 . 23 . 32,3		C.
	α Pegasi........ (flaring)	50,0	3,8	17,6	31,3	45,2	59,3	22 . 57 . 13,2		G.
	Mars 2 L............	23,6	38,3	52,9	7,3	22,0	36,7	7 . 30 . 51,2		C.
	Pollux......... (cloud)	......	41,0	56,2	11,1	26,7	42,1	7 . 35 . 57,2	- 7,63	C.
	Venus 2 L...........	30,1	44,3	58,5	12,6	26,8	41,2	8 . 46 . 55,5		C.
Aug. 30	☉ 1 L. } ..... (tremulous)	29,4	43,0	56,5	10,2	24,0	37,7	10 . 32 . 51,3		C.
	☉ 2 L. }	38,0	51,7	5,4	18,7	32,5	46,3	10 . 35 . 0,2		C.
	δ Sagittarii...........	39,8	55,0	10,3	25,8	41,3	57,1	18 . 11 . 12,5		C.
	(b) ☽ 1 L...............	20,4	36,3	52,2	8,1	24,1	40,0	18 . 29 . 55,9		G.
	σ Sagittarii...........	16,8	31,9	46,8	1,9	17,0	32,0	18 . 45 . 46,9		G.
	τ Sagittarii...........	52,6	8,0	22,9	38,3	53,7	9,0	18 . 57 . 23,9		G.
	α Aquilæ............	0,4	14,0	27,7	41,1	54,7	8,5	19 . 43 . 22,1		C.
	β Aquilæ............	29,4	43,0	56,1	9,6	23,3	37,0	19 . 47 . 50,5		C.
	(c) α^2 Capricorni.........	......	......	38,6	52,4	6,3	20,4	20 . 9 . 34,0	- 13,79	C.
	β Aquarii............	10,0	23,5	36,3	50,2	4,0	17,5	21 . 23 . 31,0		C.
	α Aquarii............	36,2	49,8	3,2	16,3	30,0	43,4	21 . 57 . 56,9		C.
	Uranus..............	45,0	58,6	12,0	25,7	39,3	53,0	22 . 50 . 6,6		C.
	(d) α Pegasi.............	49,0	2,6	16,5	30,2	44,2	58,3	22 . 57 . 12,2		C.
Aug. 31	(e) ☉ 2 L................	......	......	42,4	56,0	9,5	......	10 . 38	+ 0,09	C.
	σ Sagittarii...........	15,7	30,8	45,4	0,4	15,6	30,8	18 . 45 . 45,7		C.
	τ Sagittarii...........	51,3	6,6	22,0	37,0	52,3	7,4	18 . 57 . 22,8		C.
	(f) ☽ 1 L...............	57,3	13,0	28,5	43,9	59,7	15,7	19 . 34 . 31,2		C.
	α Aquilæ............	59,4	13,0	26,4	39,8	53,5	7,3	19 . 43 . 21,0		C.
	β Aquilæ............	28,4	41,8	55,2	8,5	22,2	35,9	19 . 47 . 49,7		C.
	c Sagittarii...........	43,6	58,7	13,7	29,0	44,3	59,7	19 . 53 . 15,0		C.
	(g) α^2 Capricorni.........	......	24,0	37,5	51,2	5,1	19,0	20 . 9 . 32,7	- 6,89	C.
	f Capricorni..........	4,7	19,0	33,4	48,3	3,0	17,8	20 . 20 . 32,2		C.
	Uranus..............	34,8	48,3	2,0	15,3	29,3	42,8	22 . 49 . 56,4		C.
	α Pegasi.............	47,6	1,5	15,3	29,0	42,9	56,9	22 . 57 . 11,2		C.
	Venus 2 L...... (cloudy)	24,3	38,2	52,4	6,3	......	......	8 . 56	+ 21,28	C.
Sept. 1	(h) ☉ 1 L................	43,3	57,0	10,4	24,3	37,7	51,3	10 . 40 . 4,8		C.
	☉ 2 L................	52,2	5,6	19,2	32,5	46,4	0,3	10 . 42 . 13,8		C.
Sept. 2	Pollux...............	21,2	36,5	51,5	7,0	22,3	37,6	7 . 35 . 53,0		C.
	(i) Mars 2 L............	......	......	......	53,8	8,3	23,2	7 . 41 . 37,3	- 21,82	C.
	Venus 2 L...... (cloudy)	15,4	......	43,5	57,5	11,6	26,0	9 . 6 . 40,2	- 4,70	C.
	Regulus......... (faint)	......	59,4	13,0	26,7	40,5	54,4	10 . 0 . 8,0	- 6,89	C.
Sept. 3	(k) ☉ 1 L................	56,4	9,8	23,4	36,8	50,5	4,3	10 . 47 . 17,8		C.
	☉ 2 L................	4,7	18,4	32,0	45,4	58,9	13,0	10 . 49 . 26,4		C.
	α Aquilæ....... (blazing)	56,0	9,5	23,0	36,6	50,4	4,0	19 . 43 . 17,6		C.
	β Aquilæ............	25,0	38,4	51,8	5,1	18,8	32,5	19 . 47 . 46,0		C.
	(l) ☽ 1 L. } ...... (very cloudy)	......	......	18,3	32,2	46,5	0,8	22 . 38	- 7,02	C.
	☽ 2 L. }	11,0	25,3	39,7	53,8	7,7	22,2	22 . 40 . 36,3		C.
	α Pegasi.............	44,6	58,3	12,0	25,6	39,7	53,6	22 . 57 . 7,6		C.
	φ Aquarii............	59,7	13,0	26,4	14,0	53,5	7,2	23 . 6 . 20,8		C.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG.*

(a) Very irregular motion.

(b) Badly defined and very unsteady. (c) Hurried.

(d) Lamp light not good. Wire III was written down 17,5 and is altered conjecturally.

(e) Good for little, so cloudy. The counting was found 1s in defect and the observation has been altered accordingly.

(f) Wire V was written down 0,3, which at the time was thought to be a mistake for 59,7.

(g) Hurried. Seconds not taken from clock.

(h) Much waving and tremor: 2 L better than 1 L.

(i) Extremely cloudy and doubtful.

(k) Observation of 1 L confused. The seconds were not taken from clock, and it was noted at the time that a second was lost after wire IV. The observation has been altered accordingly.

(l) An unsatisfactory observation. The 2 L was rough, and the correction applied to its apparent R.A. for defect of illumination =+ 0s,08.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	
22 . 57 . 32,53		– 0,28	32,21	44,82	12,61	1,18	11,61	22 . 57 . 44,94	α Pegasi.
17 . 11 . 53,29			53,23			1,08	12,76	17 . 12 . 6,76	θ Ophiuchi.
17 . 25 . 56,23			56,20					17 . 26 . 9,74	☽ 1 L.
17 . 55 . 13,86			13,83					17 . 55 . 27,39	γ^2 Sagittarii.
18 . 10 . 27,05			27,02					18 . 10 . 40,60	δ Sagittarii.
21 . 22 . 51,40			51,20	5,04	13,84			21 . 23 . 4,92	β Aquarii.
22 . 56 . 31,48			31,16	44,83	13,67			22 . 56 . 44,95	α Pegasi.
7 . 30 . 7,43			7,05			1,04	13,77	7 . 30 . 21,15	Mars 2 L.
7 . 35 . 11,42			10,99	25,00	14,01			7 . 35 . 25,09	Pollux.
8 . 46 . 12,71			12,36					8 . 46 . 26,51	Venus 2 L.
10 . 32 . 10,30 10 . 34 . 18,98			14,36					10 . 33 . 28,59	⊙'s center.
18 . 10 . 25,97			25,94					18 . 10 . 40,50	δ Sagittarii.
18 . 29 . 8,15			8,12					18 . 29 . 22,69	☽ 1 L.
18 . 45 . 1,90			1,84					18 . 45 . 16,42	σ Sagittarii.
18 . 56 . 38,35			38,31					18 . 56 . 52,90	τ Sagittarii.
19 . 42 . 41,21			40,93	55,65	14,72			19 . 42 . 55,55	α Aquilæ.
19 . 47 . 9,85			9,58	24,23	14,65			19 . 47 . 24,21	β Aquilæ.
20 . 8 . 52,55			52,40	7,03	14,63			20 . 9 . 7,04	α^2 Capricorni.
21 . 22 . 50,35			50,16	5,04	14,88			21 . 23 . 4,85	β Aquarii.
21 . 57 . 16,54			16,31	31,05	14,74			21 . 57 . 31,03	α Aquarii.
22 . 49 . 25,74			25,55					22 . 49 . 40,31	Uranus.
22 . 56 . 30,42			30,10	44,84	14,74			22 . 56 . 44,86	α Pegasi.
10 . 37 . 56,06		– 0,77	55,75			1,14	14,86	10 . 38 . 11,11	⊙ 2 L.
18 . 45 . 0,63			0,53					18 . 45 . 16,28	σ Sagittarii.
18 . 56 . 37,06			36,98					18 . 56 . 52,74	τ Sagittarii.
19 . 33 . 44,18			44,10					19 . 33 . 59,89	☽ 1 L.
19 . 42 . 40,06			39,75	55,64	15,89			19 . 42 . 55,54	α Aquilæ.
19 . 47 . 8,82			8,52	24,22	15,70			19 . 47 . 24,32	β Aquilæ.
19 . 52 . 29,15			29,07					19 . 52 . 44,87	c Sagittarii.
20 . 8 . 51,36			51,18	7,03	15,85			20 . 9 . 7,00	α^2 Capricorni.
20 . 19 . 48,35			48,24					20 . 20 . 4,07	*f* Capricorni.
22 . 49 . 15,56			15,34					22 . 49 . 31,29	Uranus.
22 . 56 . 29,20			28,86	44,84	15,98			22 . 56 . 44,81	α Pegasi.
8 . 56 . 6,58			6,21			1,12	15,98	8 . 56 . 22,61	Venus 2 L.
10 . 39 . 24,11 10 . 41 . 32,86			28,18					10 . 40 . 44,66	⊙'s center.
7 . 35 . 7,02			6,58	25,11	18,53	1,08	18,27	7 . 35 . 25,19	Pollux.
7 . 40 . 53,83			53,43					7 . 41 . 12,05	Mars 2 L.
9 . 5 . 57,67			57,31					9 . 6 . 15,99	Venus 2 L.
9 . 59 . 26,78			26,45	45,27	18,82			9 . 59 . 45,17	Regulus.
10 . 46 . 37,00 10 . 48 . 45,54			40,96					10 . 47 . 59,72	⊙'s center.
19 . 42 . 36,73			36,42	55,61	19,19			19 . 42 . 55,58	α Aquilæ.
19 . 47 . 5,37			5,07	24,19	19,12			19 . 47 . 24,23	β Aquilæ.
22 . 37 . 32,43			32,24					22 . 37 . 51,53	☽ 1 L.
22 . 39 . 53,71			53,52					22 . 40 . 12,89	☽ 2 L.
22 . 56 . 25,91			25,57	44,87	19,30			22 . 56 . 44,87	α Pegasi.
23 . 5 . 40,08			39,87					23 . 5 . 59,18	φ Aquarii.

Error of Collimation = + 0″,97.

Level Error = – 7″,01.

Meridian Error from Aug. 31 by bisection of Grantchester cross Sept. 5, with correction – 0″,50.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Sept. 3	κ^1 Piscium	41,6	55,0	8,5	22,0	35,4	48,9	23 . 19 . 2,2		C.
	Mars 2 L.	50,8	5,3	19,9	34,0	48,9	3,4	7 . 44 . 18,0		C.
	Venus 2 L.	9,7	23,8	38,0	51,6	6,1	20,2	9 . 11 . 34,4		C.
Sept. 4	⊙ 1 L. } ... (misty and faint)	32,8	46,7	59,9	13,7	27,0	40,8	10 . 50 . 54,6		G.
	⊙ 2 L. }	41,3	54,4	8,3	21,8	35,5	49,2	10 . 53 . 2,8		G.
	Uranus	54,4	8,5	21,9	35,2	49,0	... ...	22 . 48	+ 13,63	G.
	α Pegasi	43,4	57,0	10,9	24,8	38,8	52,5	22 . 57 . 6,4		G.
	φ Aquarii	58,5	12,1	25,6	39,0	52,4	6,3	23 . 6 . 19,8		G.
	κ^1 Piscium (clouds)	40,7	53,8	7,2	20,8	34,2	... ...	23 . 19 . 1,1	+ 4,50	G.
	☽ 2 L.	31,8	45,8	59,6	13,2	27,3	41,1	23 . 36 . 55,2		G.
	Procyon	49,4	2,7	16,3	29,6	43,2	57,0	7 . 31 . 10,5		C.
	Pollux	19,2	34,4	49,4	4,7	20,0	35,6	7 . 35 . 50,8		C.
Sept. 6	⊙ 2 L. (cloudy)	... ...	... ...	19,4	32,8	46,4	0,3	11 . 0 . 13,7	- 13,54	C.
	Castor (cloudy)	... ...	... ...	... ...	54,5	10,7	26,7	7 . 24 . 42,4	- 23,84	C.
	(a) Venus 2 L.	... ...	... ...	... ...	29,9	43,8	58,0	9 . 26 . 11,9	- 21,02	C.
Sept. 7	(b) ⊙ 1 L.	19,5	32,7	46,4	59,8	13,6	27,3	11 . 1 . 40,8		C.
	⊙ 2 L.	27,6	40,8	54,6	8,2	21,9	35,4	11 . 3 . 49,1		C.
Sept. 8	α Aquilæ	50,7	4,2	17,7	31,2	44,8	58,7	19 . 43 . 12,4		C.
	β Aquilæ	19,5	33,0	46,3	59,7	13,3	27,0	19 . 47 . 40,5		C.
	α^2 Capricorni	1,4	15,0	28,8	42,5	56,4	10,3	20 . 9 . 24,1		C.
	Uranus	14,7	28,4	41,8	55,2	8,8	22,6	22 . 48 . 36,2		C.
	α Pegasi	39,3	53,0	6,8	20,6	34,5	48,6	22 . 57 . 2,4		C.
Sept. 10	(c) ⊙ 1 L.	4,5	18,2	31,7	45,2	58,6	12,3	11 . 12 . 25,8		C.
	⊙ 2 L.	12,7	26,3	39,6	53,2	6,4	20,3	11 . 14 . 33,8		C.
	(d) δ Ursæ Minoris	12.47,0	16.33,5	20.19,7	24. 2,6	27.53,3	31.40,2	18 . 35 . 26,0		G.
	Uranus (cloudy)	... ...	... ...	22,1	35,7	49,2	3,0	22 . 48	- 6,75	G.
	α Pegasi	36,9	50,8	4,8	18,4	32,4	46,3	22 . 57 . 0,1		G.
	☽ 2 L.	5,4	21,1	36,8	52,2	8,1	23,9	5 . 25 . 39,4		G.
	α Orionis	19,0	32,6	45,8	59,1	12,9	26,8	5 . 46 . 40,0		G.
	δ Ursæ Min. SP.. (faint)	... ...	16.21,6	20. 9,0	23.59,0	27.42,6	31.28,5	6 . 35 . 13,4	- 1 . 53,39	G.
	Castor	3,1	19,0	34,7	50,5	6,7	22,6	7 . 24 . 38,4		G.
	Procyon	43,1	56,9	10,2	23,8	37,2	50,9	7 . 31 . 4,4		G.
	Mars 2 L. (very hazy)	20,1	34,2	48,6	3,1	17,7	... ...	8 . 2	+ 14,51	G.
	(e) Venus 2 L.	8,7	22,3	36,2	49,7	4,1	18,3	9 . 45 . 31,7		B.
Sept. 11	⊙ 1 L.	39,3	52,9	6,2	19,7	33,2	46,9	11 . 16 . 0,6		B.
	⊙ 2 L.	47,6	1,4	14,4	28,0	41,4	55,2	11 . 18 . 8,9		B.
	Polaris SP.	36.32,8	44.54,5	53.11,7	1.36,3	9.47,6	18. 0,8	13 . 26 . 19,4		B.
	α Ophiuchi	18,7	32,2	45,9	59,6	13,4	27,3	17 . 27 . 40,9		B.
	δ Ursæ Minoris	12.46,3	16.32,8	20.18,5	24. 1,8	27.50,3	31.39,7	18 . 35 . 25,2		B.
	α Aquilæ	47,2	1,2	14,4	28,2	41,4	55,1	19 . 43 . 9,0		B.
	β Aquilæ	16,1	29,4	43,2	56,4	10,2	24,0	19 . 47 . 37,3		B.
	α^2 Capricorni	58,1	11,8	25,9	39,2	53,0	7,1	20 . 9 . 21,0		B.
	Uranus	44,8	58,6	12,2	25,6	39,3	53,1	22 . 48 . 6,7		B.
	α Pegasi	35,9	49,4	3,8	17,3	31,2	45,2	22 . 56 . 59,2		B.
	☽ 2 L. (very faint)	21,4	36,7	52,5	8,4	24,0	40,1	6 . 26 . 55,9		B.
	Venus 2 L.	56,2	9,7	23,6	37,4	51,8	5,6	9 . 50 . 19,4		B.
Sept. 12	⊙ 1 L.	14,3	27,7	41,0	54,3	8,0	21,6	11 . 19 . 35,1		B.
	⊙ 2 L.	22,1	35,4	48,9	2,5	16,2	29,9	11 . 21 . 43,3		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.
The Transit levelled Sept. 14, 6^h.

(*a*) Hurried. Seconds not taken from clock.

(*b*) The Sun had been shining on the Transit axis a short time before this observation.

(*c*) Both limbs ragged, waving, and unsteady.

(*d*) Exceedingly faint.

(*e*) Very hazy and unsteady. The intervals are unsatisfactory.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0ʰ.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
23 . 18 . 21,94		− 0,77	21,68			1,08	18,27	23 . 18 . 41,00	κ¹ Piscium.
7 . 43 . 34,33			33,93			1,09	19,34	7 . 43 . 53,62	Mars 2 L.
9 . 10 . 51,97			51,61					9 . 11 . 11,37	Venus 2 L.
10 . 50 . 13,64 10 . 52 . 21,90			17,46					10 . 51 . 37,29	⊙'s center.
22 . 48 . 35,43			35,21					22 . 48 . 55,59	Uranus.
22 . 56 . 24,83			24,49	44,87	20,38			22 . 56 . 44,87	α Pegasi.
23 . 5 . 39,10			38,89					23 . 5 . 59,28	φ Aquarii.
23 . 18 . 20,80			20,54					23 . 18 . 40,94	κ¹ Piscium.
23 . 36 . 13,43			13,21					23 . 36 . 33,62	☽ 2 L.
7 . 30 . 29,82			29,53	50,32	20,79		20,43	7 . 30 . 50,30	Procyon.
7 . 35 . 4,87			4,43	25,17	20,74			7 . 35 . 25,20	Pollux.
10 . 59 . 32,98			32,67			1,05	21,39	10 . 59 . 54,54	⊙ 2 L.
7 . 23 . 54,73			54,27	17,03	22,76		22,44	7 . 24 . 17,03	Castor.
9 . 25 . 29,88			29,53					9 . 25 . 52,38	Venus 2 L.
11 . 1 . 0,02 11 . 3 . 8,23			3,83					11 . 2 . 26,75	⊙'s center.
19 . 42 . 31,38		+ 0,49	31,13	55,56	24,43	1,04	23,56	19 . 42 . 55,54	α Aquilæ.
19 . 46 . 59,90			59,66	24,15	24,49			19 . 47 . 24,08	β Aquilæ.
20 . 8 . 42,64			42,54	6,97	24,43			20 . 9 . 6,97	α² Capricorni.
22 . 47 . 55,39			55,25					22 . 48 . 19,80	Uranus.
22 . 56 . 20,74			20,45	44,90	24,45			22 . 56 . 45,00	α Pegasi.
11 . 11 . 45,19 11 . 13 . 53,18			48,98			1,06	25,63	11 . 13 . 15,10	⊙'s center.
18 . 24 . 6,04	1,18		0,87	26,95	26,08			18 . 24 . 27,31	δ Ursæ Minoris.
22 . 47 . 35,75			35,64					22 . 48 . 2,28	Uranus.
22 . 56 . 18,53			18,27	44,91	26,64			22 . 56 . 44,91	α Pegasi.
5 . 24 . 52,41			52,06			1,03	26,72	5 . 25 . 19,01	☽ 2 L.
5 . 45 . 59,46			59,24	26,19	26,95			5 . 46 . 26,21	α Orionis.
6 . 23 . 55,63	59,96		0,32	26,72	26,40			18 . 24 . 27,31	δ Ursæ Min. SP.
7 . 23 . 50,71			50,32	17,16	26,84			7 . 24 . 17,36	Castor.
7 . 30 . 23,79			23,58	50,47	26,89			7 . 30 . 50,62	Procyon.
8 . 2 . 3,25			2,95					8 . 2 . 30,01	Mars 2 L.
9 . 44 . 50,15			49,89					9 . 45 . 17,03	Venus 2 L.
11 . 15 . 19,83 11 . 17 . 28,13			23,77					11 . 16 . 50,97	⊙'s center.
13 . 1 . 29,01			39,62	7,23	27,61			1 . 2 . 6,90	Polaris SP.
17 . 26 . 59,72			59,47	27,07	27,60			17 . 27 . 26,94	α Ophiuchi.
18 . 24 . 4,94	0,08		59,77	26,49	26,72			18 . 24 . 27,28	δ Ursæ Minoris.
19 . 42 . 28,07			27,85	55,52	27,67			19 . 42 . 55,41	α Aquilæ.
19 . 46 . 56,66			56,45	24,11	27,66			19 . 47 . 24,02	β Aquilæ.
20 . 8 . 39,45			39,36	6,94	27,58			20 . 9 . 6,94	α² Capricorni.
22 . 47 . 25,76			25,65					22 . 47 . 53,35	Uranus.
22 . 56 . 17,43			17,17	44,91	27,74			22 . 56 . 44,87	α Pegasi.
6 . 26 . 8,43		+ 0,91	8,09			1,02	27,76	6 . 26 . 36,12	☽ 2 L.
9 . 49 . 37,67			37,43					9 . 50 . 5,61	Venus 2 L.
11 . 18 . 54,57 11 . 21 . 2,61			58,42					11 . 20 . 26,66	⊙'s center.

Error of Collimation = + 0″,97.

Level Error = − 7″,01. From Sept. 10 = − 6″,43.

Meridian Error from Sept. 8 by δ Ursæ Minoris, δ Ursæ Minoris SP, and δ Ursæ Minoris Sept. 10 and 11.

.... from the Moon Sept. 11 by Polaris SP and Polaris Sept. 12, allowing $+0^{s},50$ for loss of clock and $+0^{s},18$ for change of Æ.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Sept. 12	Polaris SP.. (hazy and faint)	36.35,4	44.52,7	53.12,8	1.32,5	......	17.57,6	13 . 26 . 17,7	+ 1 . 22,94	B.
	α Aquilæ............	46,1	59,8	13,5	27,1	40,5	54,2	19 . 43 . 8,1		B.
	β Aquilæ. (cloudy and faint)	15,0	28,7	42,1	55,6	9,1	23,1	19 . 47 . 36,3		B.
	Uranus................	35,1	48,8	2,2	16,1	29,3	43,2	22 . 47 . 56,9		B.
	α Pegasi............	34,9	48,9	2,7	16,4	30,2	44,1	22 . 56 . 58,0		B.
	α Andromedæ.........	50,9	5,8	20,7	36,2	51,3	7,2	0 . 0 . 22,2		B.
	Polaris................	37. 0,6	45.21,4	53.32,7	1.42,3	10. 4,8	18.25,5	1 . 26 . 45,3		B.
Sept. 13	β Aquarii............	55,1	8,6	22,1	35,4	49,1	2,8	21 . 23 . 16,2		B.
	α Aquarii............	20,9	34,3	47,9	1,7	15,2	28,3	21 . 57 . 41,8		B.
	Uranus................	25,2	38,7	52,2	5,9	19,8	33,3	22 . 47 . 47,1		B.
	α Pegasi............	33,9	47,4	1,4	15,2	29,1	43,0	22 . 56 . 57,0		B.
Sept. 15	⊙ 1 L................	57,6	11,1	24,6	38,1	51,8	5,3	11 . 30 . 18,9		B.
	⊙ 2 L................	5,9	19,4	33,0	46,3	59,9	13,3	11 . 32 . 26,7		B.
	α^2 Capricorni..........	53,6	7,4	21,1	35,1	49,1	2,7	20 . 9 . 16,8		B.
	β Aquarii............	52,4	6,0	19,5	33,1	46,3	0,0	21 . 23 . 14,0		B.
	α Aquarii............	19,1	32,3	46,1	59,1	13,2	26,1	21 . 57 . 39,7		B.
	Uranus................	5,8	19,2	33,0	46,3	59,9	13,6	22 . 47 . 27,2		B.
	α Pegasi............	31,6	45,3	59,1	13,2	27,0	41,1	22 . 56 . 54,9		B.
Sept. 19	Regulus. ...... (cloudy)	......	......	55,5	9,1	23,0	37,1	9 . 59 . 50,8	– 13,78	B.
	Venus 2 L. (cloudy & unsteady)	52,3	5,8	19,4	32,8	46,9	0,4	10 . 28	+ 6,88	B.
Sept. 20	(*a*) Polaris SP............	36.33,7	44.47,3	53. 7,8	......	9.44,3	17.57,6	13.........	+ 4 . 59,24	B.
	α Aquilæ.	37,8	51,7	5,1	19,1	32,4	46,2	19 . 43 . 0,1		B.
	α^2 Capricorni	48,9	2,6	16,3	29,9	43,8	58,1	20 . 9 . 11,7		B.
	β Aquarii............	48,1	1,3	14,8	28,2	42,1	55,3	21 . 23 . 8,9		B.
	α Aquarii............	13,9	27,3	41,1	54,2	7,8	21,3	21 . 57 . 34,7		B.
	Uranus................	18,1	31,7	45,0	58,8	12,3	26,0	22 . 46 . 39,5		B.
	α Pegasi............	26,9	40,9	54,6	8,3	22,1	36,1	22 . 56 . 50,1		B.
	α Andromedæ.........	42,9	57,8	13,0	27,9	43,2	59,1	0 . 0 . 14,1		B.
	Polaris................	36.52,7	45.10,8	53.24,4	......	9.52,6	18.14,6	1 . 26 . 32,8	– 1,10	B.
	Mars 2 L............	58,7	30,2	27,3	41,3	56,2	10,5	8 . 28 . 24,6		B.
	Regulus	27,1	40,7	54,5	8,1	22,1	35,8	9 . 59 . 50,1		B.
	Venus 2 L. (cloudy & uusteady)	33,4	......	0,7	14,9	......	......	10 . 32	+ 18,34	B.
Sept. 21	⊙ 1 L................	24,7	38,2	51,5	5,1	18,6	32,1	11 . 51 . 45,4		B.
	⊙ 2 L................	32,9	46,5	0,1	13,4	26,9	40,3	11 . 53 . 53,9		B.
	Polaris SP............	36.31,4	44.44,7	53. 4,6	......	9.41,3	17.57,6	13 . 26 . 11,5	– 1,10	B.
	α Aquilæ............	37,1	50,8	4,2	18,1	31,3	45,1	19 . 42 . 58,8		B.
	β Aquilæ............	6,1	19,3	33,1	46,2	59,9	13,7	19 . 47 . 27,1		B.
	α^2 Capricorni..... (blnr)	48,4	2,1	15,3	29,2	43,1	57,1	20 . 9 . 11,0		B.
	β Aquarii............	47,0	0,3	13,7	27,2	40,9	54,2	21 . 23 . 7,9		B.
	α Aquarii............	13,1	27,0	40,2	53,3	7,1	20,3	21 . 57 . 34,1		B.
	Uranus................	8,8	22,2	35,9	49,3	2,9	16,7	22 . 46 . 30,1		B.
	α Pegasi............	25,9	39,4	53,2	7,1	21,1	35,2	22 . 56 . 49,3		B.
	α Andromedæ.	42,2	57,1	12,2	27,3	42,3	57,8	0 . 0 . 13,2		B.
	Polaris................	......	45.12,5	53.27,8	1.35,3	9.53,6	18.19,4	1 . 26 . 36,2	– 4 . 8,30	B.
	Mars 2 L............	29,2	44,1	58,2	12,6	26,5	41,7	8 . 30 . 55,6		B.
	(*b*) Regulus............	26,6	40,2	54,0	7,6	21,2	35,1	9 . 59 . 48,9		B.
	Venus 2 L............	14,2	27,6	41,3	54,8	8,6	22,5	10 . 37 . 36,4		B.
Sept. 22	⊙ 1 L................	59,7	13,1	26,3	39,8	53,3	7,1	11 . 55 . 20,5		B.
	⊙ 2 L................	8,1	21,3	34,6	48,1	1,7	15,2	11 . 57 . 29,0		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.
The Transit levelled Sept. 20, 5^h.

(*a*) Very cloudy with much motion. This observation is not used for Meridian Error.

(*b*) Hurried at the four first wires.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
13. 1.27,72	37,57	+0,91	38,99	7,63	28,64	1,02	27,76	1. 2. 7,30	Polaris SP.
19.42.27,04			26,84	55,51	28,67			19.42.55,44	α Aquilæ.
19.46.55,70			55,51	24,10	28,59			19.47.24,11	β Aquilæ.
22.47.15,94			15,85					22.47.44,58	Uranus.
22.56.16,46			16,22	44,92	28,70			22.56.44,96	α Pegasi.
23.59.36,33			35,99	4,75	28,76			0. 0. 4,77	α Andromedæ.
1. 1.50,37	39,99		38,67	7,81	29,14		28,78	1. 2. 7,50	Polaris.
21.22.35,61			35,50	5,01	29,51	1,05	28,74	21.23. 5,17	β Aquarii.
21.57. 1,44			1,30	31,06	29,76			21.57.31,00	α Aquarii.
22.47. 6,03			5,94					22.47.35,68	Uranus.
22.56.15,29			15,05	44,92	29,87			22.56.44,79	α Pegasi.
11.29.38,20			42,12			1,12	30,92	11.31.13,58	⊙’s center.
11.31.46,36									
20. 8.35,11			35,05	6,89	31,84			20. 9. 6,91	α^2 Capricorni.
21.22.33,04			32,94	5,00	32,06			21.23. 4,86	β Aquarii.
21.56.59,37			59,23	31,06	31,83			21.57.31,17	α Aquarii.
22.46.46,43			46,34					22.47.18,32	Uranus.
22.56.13,17			12,93	44,93	32,00			22.56.44,92	α Pegasi.
9.59. 9,32		−0,68	8,98	45,53	36,55	0,92	36,06	9.59.45,42	Regulus.
10.27.33,15			32,82					10.28. 9,28	Venus 2 L.
13. 1.25,38			35,71	9,91	34,20			1. 2.12,27	Polaris SP.
19.42.18,92			18,61	55,40	36,79			19.42.55,42	α Aquilæ.
20. 8.30,19			30,01	6,83	36,82			20. 9. 6,84	α^2 Capricorni.
21.22.28,39			28,17	4,97	36,80			21.23. 5,05	β Aquarii.
21.56.54,33			54,07	31,04	36,97			21.57.30,97	α Aquarii.
22.45.58,77			58,56					22.46.35,49	Uranus.
22.56. 8,43			8,08	44,94	36,86			22.56.45,02	α Pegasi.
23.59.28,29			27,84	4,83	36,99			0. 0. 4,82	α Andromedæ.
1. 1.40,22	28,23		29,22	10,07	40,85		36,98	1. 2. 6,24	Polaris.
8.27.41,68			41,29			0,94	36,97	8.28.18,59	Mars 2 L.
9.59. 8,35			8,01	45,55	37,54			9.59.45,37	Regulus.
10.32.14,67			14,35					10.32.51,73	Venus 2 L.
11.51. 5,09			8,99					11.52.46,43	⊙’s center.
11.53.13,43									
13. 1.20,75	32,14		31,08	10,23	39,15			1. 2. 8,56	Polaris SP.
19.42.17,92			17,61	55,39	37,78			19.42.55,35	α Aquilæ.
19.46.46,49			46,19	23,98	37,79			19.47.23,93	β Aquilæ.
20. 8.29,46			29,28	6,82	37,54			20. 9. 7,04	α^2 Capricorni.
21.22.27,32			27,10	4,97	37,87			21.23. 4,91	β Aquarii.
21.56.53,59			53,33	31,03	37,70			21.57.31,16	α Aquarii.
22.45.49,42			49,21					22.46.27,07	Uranus.
22.56. 7,32			6,97	44,94	37,97			22.56.44,84	α Pegasi.
23.59.27,45			27,00	4,84	37,84			0. 0. 4,91	α Andromedæ.
1. 1.42,50	30,51		31,50	10,40	38,90		37,91	1. 2. 9,45	Polaris.
8.30.12,55			12,16			0,98	37,92	8.30.50,43	Mars 2 L.
9.59. 7,66			7,32	45,57	38,25			9.59.45,65	Regulus.
10.36.55,06			54,74					10.37.33,09	Venus 2 L.
11.54.39,98			43,87					11.56.22,28	⊙’s center.
11.56.48,29									

Error of Collimation = +0″,97.

Level Error = −6″,43. From Sept. 19 = −7″,24.

The two sets of three consecutive Transits of Polaris beginning with Polaris Sept. 20, give for Meridian Error −0″,92 and −0″,44, the mean of which is used from Sept. 19.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Sept. 22	Polaris SP	36.28,6	44.45,3	53. 5,5	......	9.41,8	17.53,7	13 . 26 . 12,4	– 1,10	B.
	β Aquarii	45,7	59,1	13,1	26,2	40,0	53,4	21 . 23 . 7,1		B.
	α Aquarii	12,1	25,4	38,9	52,2	6,1	19,3	21 . 57 . 32,8		B.
Sept. 26	(a) ⊙ 1 L	19,2	32,7	46,1	59,5	13,1	......	12 . 9	+ 13,51	B.
	⊙ 2 L	28,0	41,3	54,9	......	......	......	12 . 10	+ 26,94	B.
	☽ 1 L... (cloudy and very faint)	10,0	25,4	41,6	57,3	13,6	29,8	18 . 3 . 45,4		B.
Sept. 27	α Aquarii	7,7	20,9	34,5	47,8	1,3	14,9	21 . 57 . 28,2		G.
	Uranus	14,2	28,1	41,6	55,1	8,5	......	22 . 45	+ 13,64	G.
	α Pegasi	20,1	34,2	48,1	1,9	15,3	29,8	22 . 56 . 43,3		G.
	α Andromedæ	36,3	51,3	6,6	21,6	37,2	52,3	0 . 0 . 7,5		G.
	Mars 2 L	22,3	36,4	50,3	4,5	19,2	33,3	8 . 45 . 47,4		B.
	Regulus	20,7	34,4	48,0	1,8	15,5	29,7	9 . 59 . 43,3		B.
	Venus 2 L	5,3	18,7	32,4	45,6	59,4	13,4	11 . 5 . 26,9		B.
Sept. 28	⊙ 1 L	29,9	43,1	57,2	10,7	24,1	36,9	12 . 16 . 51,2		B.
	⊙ 2 L	39,1	52,1	6,0	19,3	32,9	46,3	12 . 18 . 59,9		B.
	Polaris SP	36.22,3	44.47,7	53. 8,4	1.27,6	9.34,8	17.52,5	13 . 26 . 9,2		B.
	Arcturus	50,7	5,1	19,3	33,6	48,1	2,4	14 . 8 . 16,8		B.
	α Ophiuchi	1,8	15,4	29,2	43,0	56,9	10,9	17 . 27 . 24,3		G.
	h^2 Sagittarii	25,1	40,0	54,8	9,8	24,7	39,4	19 . 26 . 54,2		G.
	α Aquilæ	30,7	44,2	57,7	11,2	24,9	38,7	19 . 42 . 52,0		G.
	β Aquilæ	59,3	13,0	26,3	39,7	53,4	7,0	19 . 47 . 20,8		G.
	c Sagittarii	14,5	29,8	45,2	0,2	15,3	31,1	19 . 52 . 46,2		G.
	☽ 1 L (waving)	42,3	58,0	13,2	28,3	44,0	59,8	20 . 8 . 15,0		G.
	η Capricorni	47,1	1,5	15,9	29,9	44,6	59,0	20 . 55 . 13,2		G.
	Uranus... (cloudy and faint)	......	19,3	33,0	46,2	0,2	......	22 . 45	+ 6,84	G.
	α Pegasi	19,8	33,4	47,2	1,0	15,0	28,9	22 . 56 . 42,9		G.
	Polaris	36.46,4	45. 7,7	53.21,3	1.31,5	9.53,7	18.20,4	1 . 26 . 34,2		B.
Sept. 30	h^2 Sagittarii	22,9	37,7	52,6	7,3	22,2	37,2	19 . 26 . 51,9		B.
	α Aquilæ	28,3	41,9	55,6	9,1	22,8	36,4	19 . 42 . 50,2		B.
	β Aquilæ	57,2	10,8	24,2	37,7	51,1	4,8	19 . 47 . 18,4		B.
	c Sagittarii (hazy)	12,7	27,8	43,0	57,9	13,6	29,1	19 . 52 . 44,2		B.
	α^2 Capricorni	39,2	52,9	6,9	20,5	34,1	47,9	20 . 9 . 2,1		B.
	η Capricorni	45,0	59,3	13,5	27,7	42,3	56,8	20 . 55 . 11,0		B.
	β Aquarii	38,0	51,7	5,1	18,7	32,0	45,9	21 . 22 . 59,2		B.
	γ Capricorni	41,4	55,5	9,7	23,4	37,5	52,1	21 . 31 . 6,2		B.
	δ Capricorni	41,1	55,0	8,8	22,7	36,9	50,9	21 . 38 . 5,2		B.
	α Aquarii	4,7	18,0	31,2	44,7	58,2	11,9	21 . 57 . 25,1		B.
	☽ 1 L (unsteady)	4,3	18,4	32,9	47,1	1,6	16,0	22 . 7 . 30,3		B.
	σ Aquarii	40,4	54,0	7,8	21,4	35,1	49,1	22 . 22 . 2,9		B.
Oct. 2	α Aquilæ	26,6	40,2	53,8	7,2	20,9	34,3	19 . 42 . 48,0		B.
	β Aquilæ	55,1	9,0	22,1	35,7	49,1	3,1	19 . 47 . 16,4		B.
	α Pegasi	15,2	29,0	42,7	56,7	10,8	24,6	22 . 56 . 38,5		B.
	κ^1 Piscium... (very cloudy)	12,8	26,0	39,4	52,8	......	......	23 . 18 . 33,3	+ 8,08	B.
	☽ 1 L	18,9	32,8	46,3	0,2	14,1	27,8	23 . 59 . 41,7		B.
	ι Piscium	41,0	54,4	7,9	21,2	35,0	48,2	0 . 17 . 1,6		B.
	A.S.C. 79	28,4	41,7	55,2	8,7	22,2	35,6	0 . 39 . 49,1		B.
	Regulus (cloudy)	15,9	29,7	......	......	11,0	......	9 . 59 . 38,9	+ 3,42	B.
	(b) Venus 2 L..... (cloudy)	4,5	17,1	30,8	44,5	......	......	11 . 28 . 25,3	+ 8,13	B.
	Mercury 2 L	59,2	12,4	25,7	39,1	52,7	6,4	11 . 32 . 19,9		B.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG*.
The Transit levelled Sept. 27, 21^h, and Oct. 5, 5^h.

(*a*) Very cloudy, faint, and uncertain.

(*b*) Much disturbed. The counting being found at the end of the observation 1^s in defect, the wires III, IV, and VII have each been increased 1^s.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0^h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
13 . 1 . 20,12	31,51	– 0,68	30,45	10,58	40,13	0,98	37,92	1 . 2 . 8,90	Polaris SP.
21 . 22 . 26,37			26,15	4,96	38,81			21 . 23 . 4,94	β Aquarii.
21 . 56 . 52,40			52,14	31,03	38,89			21 . 57 . 30,95	α Aquarii.
12 . 8 . 59,63		– 1,31	3,70			0,93	41,65	12 . 10 . 45,82	⊙'s center.
12 . 11 . 8,34									
18 . 2 . 57,59			57,48					18 . 3 . 39,83	☽ 1 L.
21 . 56 . 47,90			47,61	31,00	43,39		42,58	21 . 57 . 31,04	α Aquarii.
22 . 44 . 55,14			54,89					22 . 45 . 38,35	Uranus.
22 . 56 . 1,81			1,43	44,94	43,51			22 . 56 . 44,90	α Pegasi.
23 . 59 . 21,83			21,36	4,88	43,52			0 . 0 . 4,87	α Andromedæ.
8 . 45 . 4,77			4,36			0,97	43,48	8 . 45 . 48,19	Mars 2 L.
9 . 59 . 1,91			1,54	45,68	44,14			9 . 59 . 45,42	Regulus.
11 . 4 . 45,96			45,62					11 . 5 . 29,55	Venus 2 L.
12 . 16 . 10,44			14,63					12 . 17 . 58,61	⊙'s center.
12 . 18 . 19,37									
13 . 1 . 20,36	31,70		29,66	12,33	42,67			1 . 2 . 13,66	Polaris SP.
14 . 7 . 33,71			33,30	17,45	44,15			14 . 8 . 17,35	Arcturus.
17 . 26 . 43,07			42,70	26,77	44,07			17 . 27 . 26,88	α Ophiuchi.
19 . 26 . 9,72			9,58					19 . 26 . 53,84	h^2 Sagittarii.
19 . 42 . 11,34			11,00	55,29	44,29			19 . 42 . 55,28	α Aquilæ.
19 . 46 . 39,93			39,60	23,88	44,28			19 . 47 . 23,88	β Aquilæ.
19 . 52 . 0,32			0,20					19 . 52 . 44,48	c Sagittarii.
20 . 7 . 28,66			28,52					20 . 8 . 12,81	☽ 1 L.
20 . 54 . 30,18			30,00					20 . 55 . 14,32	η Capricorni.
22 . 44 . 46,51			46,26					22 . 45 . 30,66	Uranus.
22 . 56 . 1,17			0,79	44,94	44,15			22 . 56 . 45,20	α Pegasi.
1 . 1 . 39,31	27,38		29,29	12,39	43,10		44,45	1 . 2 . 13,78	Polaris.
19 . 26 . 7,40		– 1,26	7,26			1,01	45,56	19 . 26 . 53,64	h^2 Sagittarii.
19 . 42 . 9,19			8,85	55,26	46,41			19 . 42 . 55,24	α Aquilæ.
19 . 46 . 37,75			37,42	23,85	46,43			19 . 47 . 23,81	β Aquilæ.
19 . 51 . 58,33			58,22					19 . 52 . 44,62	c Sagittarii.
20 . 8 . 20,51			20,29	6,70	46,41			20 . 9 . 6,70	α^2 Capricorni.
20 . 54 . 27,95			27,77					20 . 55 . 14,21	η Capricorni.
21 . 22 . 18,66			18,41	4,89	46,48			21 . 23 . 4,87	β Aquarii.
21 . 30 . 23,68			23,49					21 . 31 . 9,95	γ Capricorni.
21 . 37 . 22,94			22,75					21 . 38 . 9,22	δ Capricorni.
21 . 56 . 44,83			44,54	30,98	46,44			21 . 57 . 31,02	α Aquarii.
22 . 6 . 47,23			47,03					22 . 7 . 33,52	☽ 1 L.
22 . 21 . 21,53			21,30					22 . 22 . 7,80	σ Aquarii.
19 . 42 . 7,29			6,96	55,23	48,27	0,77	47,70	19 . 42 . 55,29	α Aquilæ.
19 . 46 . 35,79			35,47	23,82	48,35			19 . 47 . 23,80	β Aquilæ.
22 . 55 . 56,79			56,43	44,93	48,50			22 . 56 . 44,86	α Pegasi.
23 . 17 . 52,94			52,65					23 . 18 . 41,10	κ^1 Piscium.
23 . 59 . 0,25			59,97					23 . 59 . 48,44	☽ 1 L.
0 . 16 . 21,33			21,04					0 . 17 . 9,52	*t* Piscium.
0 . 39 . 8,70			8,39					0 . 39 . 56,88	A.S.C. 79.
9 . 58 . 57,29			56,93	45,79	48,86	0,69	48,47	9 . 59 . 45,69	Regulus.
11 . 27 . 44,57			44,26					11 . 28 . 33,06	Venus 2 L.
11 . 31 . 39,35			39,04					11 . 32 . 27,84	Mercury 2 L.

Error of Collimation = + 0″,97.
Level Error = – 7″,24. From Sept. 26 = – 7″,21. From Oct. 2 = – 7″,03.
Meridian Error from Sept. 26 by Polaris SP and Polaris Sept. 28, allowing + 0ˢ,43 for loss of clock and – 0ˢ,06 for change of Æ.
The two sets of three consecutive Transits of Polaris Oct. 3 and 4, give for Meridian Error – 1″,42 and – 1″,10, the mean of which is used from Sept. 30.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Oct. 3	⊙ 1 L. .... (cloudy)	......	......	58,4	11,8	25,3	38,8	12 . 34 . 52,2	− 13,49	B.
	⊙ 2 L.	40,3	54,0	7,4	20,7	34,1	48,0	12 . 37 . 1,5		B.
	Polaris SP.	......	44.37,4	52.58,5	......	9.34,2	......	13 . 26 . 6,3	− 2 . 4,07	B.
	Arcturus.	46,1	0,4	14,6	28,8	43,1	57,4	14 . 8 . 12,1		B.
	α Aquilæ.	25,8	39,2	52,9	6,4	20,0	33,9	19 . 42 . 47,4		G.
	β Aquilæ.	54,8	8,0	21,3	35,0	48,5	2,2	19 . 47 . 15,9		G.
	α² Capricorni.	36,6	50,3	4,0	17,9	31,4	45,4	20 . 8 . 59,3		G.
	β Aquarii.	35,4	49,1	2,5	15,9	29,6	43,2	21 . 22 . 56,4		G.
	Uranus.	23,1	36,7	50,0	3,8	17,2	......	22 . 44	+ 13,64	G.
	α Pegasi.	14,4	28,7	42,3	56,1	10,0	24,0	22 . 56 . 37,9		G.
	ι Piscium.	......	53,9	7,1	20,5	34,1	47,4	0 . 17 . 1,2	− 6,71	G.
	A.S.C. 79.	27,6	41,3	54,1	7,8	21,2	35,1	0 . 39 . 48,3		B.
	☽ 2 L.	25,9	39,8	53,4	7,1	20,9	35,0	0 . 57 . 49,0		B.
	Polaris. .... (blur)	36.44,4	45. 0,2	53.14,8	1.23,7	9.48,5	18.11,8	1 . 26 . 29,3		B.
	η Piscium.	22,1	36,1	49,9	4,2	18,0	32,1	1 . 22 . 46,1		B.
	ο Piscium.	24,4	38,2	52,1	5,2	19,1	32,4	1 . 36 . 46,2		B.
Oct. 4	(a) ⊙ 2 L.	17,5	31,1	44,4	57,9	12,1	25,3	12 . 40 . 38,7		B.
	(a) Polaris SP.	......	44.37,5	......	......	......	17.49,7	13 . 26 . 4,3	− 8 . 15,64	B.
	α Aquilæ	25,1	38,6	52,1	5,8	19,5	33,0	19 . 42 . 46,7		G.
	β Aquilæ.	53,9	7,3	21,0	34,3	47,9	1,5	19 . 47 . 15,0		G.
	α² Capricorni.	35,8	49,7	3,1	17,0	31,0	44,8	20 . 8 . 58,6		G.
	β Aquarii.	34,8	48,4	1,9	15,0	28,8	42,2	21 . 22 . 56,0		G.
	Uranus.	15,1	28,7	42,2	55,9	9,5	......	22 . 44	+ 13,64	G.
	Polaris.	36.43,3	45. 2,5	53.18,6	1.27,4	9.49,7	18.14,2	1 . 26 . 29,1		B.
	η Piscium.	22,0	35,7	49,3	3,2	17,0	31,1	1 . 22 . 44,8		B.
	ο Piscium.	23,9	37,2	50,9	4,3	18,1	31,7	1 . 36 . 45,3		B.
	☽ 2 L.	38,3	52,2	7,0	21,0	35,1	49,7	1 . 55 . 4,1		B.
	α Arietis	34,0	48,2	2,9	17,1	31,6	46,5	1 . 58 . 1,1		B.
	ψ Arietis.	27,2	41,5	55,7	9,8	24,0	38,0	2 . 21 . 51,8		B.
	π Arietis.	47,3	1,7	15,5	29,2	43,4	57,7	2 . 40 . 12,0		B.
Oct. 10	α Andromedæ.	24,2	39,3	54,8	10,2	25,2	40,4	23 . 59 . 55,8		B.
	Polaris	36.16,6	44.33,8	52.57,5	1.18,7	9.32,3	17.47,2	1	+ 4 . 8,62	B.
	α Arietis.	28,1	42,7	57,1	12,1	26,8	41,0	1 . 57 . 55,3		B.
Oct. 11	⊙ 2 L. .... (cloudy)	......	3,2	17,0	30,5	44,3	57,4	13 . 5	− 0,03	B.
	α Coronæ Borealis	10,1	25,1	40,0	55,6	10,7	25,7	15 . 27 . 40,8		B.
	α Ophiuchi.	49,8	3,6	17,8	31,2	45,0	58,9	17 . 27 . 12,4		B.
	(b) α Aquilæ.	18,8	32,4	46,1	59,9	13,3	26,9	19 . 42 . 40,5		B.
	(b) β Aquilæ.	47,9	1,2	14,8	28,8	41,5	55,2	19 . 46	+ 6,75	B.
	(b) α² Capricorni.	30,1	43,8	57,3	11,3	25,2	39,0	20 . 8	+ 6,89	B.
	(b) α Andromedæ.	23,4	38,8	54,1	9,7	25,1	39,8	23 . 59 . 55,2		B.
	α Arietis.	27,5	42,0	56,7	11,5	26,1	40,4	1 . 57 . 54,9		B.
	☽ 2 L.	44,1	59,0	13,8	28,9	43,5	58,2	8 . 56 . 13,0		B.
	Mars 2 L.	42,3	56,4	10,6	24,9	38,7	52,7	9 . 19 . 6,8		B.
	Regulus	8,8	22,7	36,4	50,2	4,0	17,8	9 . 59 . 31,5		B.
	Mercury 2 L.	45,3	58,3	12,4	25,8	39,3	52,5	12 . 15 . 6,4		B.
Oct. 12	⊙ 1 L.	20,5	33,9	47,8	1,7	15,0	28,4	13 . 7 . 41,9		B.
	⊙ 2 L.	30,9	44,3	57,9	11,8	25,1	38,7	13 . 9 . 52,1		B.
	α Aquilæ	18,4	31,8	45,5	59,3	13,0	26,2	19 . 42 . 39,9		G.
	β Aquilæ.	47,2	0,9	14,4	28,1	41,2	54,9	19 . 47 . 8,5		G.
	β Aquarii.	28,2	41,8	55,4	9,1	22,3	36,0	21 . 22 . 49,5		G.
	α Andromedæ.	23,1	38,5	53,7	9,2	24,1	39,4	23 . 59 . 54,5		G.

ILLUMINATED END OF AXIS EAST. Order of Wires for Stars above the Pole, *ABCDEFG.*
From Oct. 10.............. WEST. .... *GFEDCBA.*

Oct. 8, 3ʰ. The Transit reversed for collimation error, and levelled immediately before and after the reversion. Before the first levelling the screws of the East Pier were moved to diminish the Level Error.

(a) Very cloudy and unsteady. | (b) Very cloudy.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0^h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
12 . 34 . 11,81		– 1,26	16,07			0,69	48,47	12 . 36 . 4,90	⊙'s center.
12 . 36 . 20,85									
13 . 1 . 15,03	26,03		24,06	12,79	48,73			1 . 2 . 12,90	Polaris SP.
14 . 7 . 28,93			28,53	17,43	48,90			14 . 8 . 17,40	Arcturus.
19 . 42 . 6,52			6,19	55,21	49,02			19 . 42 . 55,23	α Aquilæ.
19 . 46 . 35,10			34,78	23,80	49,02			19 . 47 . 23,82	β Aquilæ.
20 . 8 . 17,85			17,64	6,66	49,02			20 . 9 . 6,69	α^2 Capricorni.
21 . 22 . 16,01			15,76	4,85	49,09			21 . 23 . 4,85	β Aquarii.
22 . 44 . 3,80			3,57					22 . 44 . 52,69	Uranus.
22 . 55 . 56,20			55,84	44,92	49,08			22 . 56 . 44,97	α Pegasi.
0 . 16 . 20,66			20,36				49,16	0 . 17 . 9,53	ι Piscium.
0 . 39 . 7,92			7,61					0 . 39 . 56,79	A.S.C. 79.
0 . 57 . 7,30			6,97					0 . 57 . 56,16	☽ 2 L.
1 . 1 . 33,24	21,67		23,50	12,87	49,37			1 . 2 . 12,69	Polaris.
1 . 22 . 4,07			3,70					1 . 22 . 52,90	η Piscium.
1 . 36 . 5,37			5,04					1 . 36 . 54,25	ο Piscium.
12 . 39 . 58,15			57,89			0,67	49,16	12 . 40 . 47,40	⊙ 2 L.
13 . 1 . 14,86	25,86		23,89	12,96	49,07			1 . 2 . 13,41	Polaris SP.
19 . 42 . 5,83			5,50	55,19	49,69			19 . 42 . 55,21	α Aquilæ.
19 . 46 . 34,41			34,09	23,78	49,69			19 . 47 . 23,80	β Aquilæ.
20 . 8 . 17,14			16,93	6,65	49,72			20 . 9 . 6,65	α^2 Capricorni.
21 . 22 . 15,30			15,05	4,84	49,79			21 . 23 . 4,81	β Aquarii.
22 . 43 . 55,92			55,69					22 . 44 . 45,48	Uranus.
1 . 1 . 34,97	23,40		25,23	13,06	47,83		49,83	1 . 2 . 15,09	Polaris.
1 . 22 . 3,30			2,93					1 . 22 . 52,80	η Piscium.
1 . 36 . 4,49			4,16					1 . 36 . 54,03	ο Piscium.
1 . 54 . 21,05			20,69					1 . 55 . 10,57	☽ 2 L.
1 . 57 . 17,35			16,92	6,84	49,92			1 . 58 . 6,80	α Arietis.
2 . 21 . 9,72			9,34					2 . 21 . 59,23	ψ Arietis.
2 . 39 . 29,55			29,17					2 . 40 . 19,07	π Arietis.
23 . 59 . 9,98		– 1,12	10,04	4,92	54,88	0,53	54,93	0 . 0 . 4,97	α Andromedæ.
1 . 1 . 12,97			16,84	13,96	57,12			1 . 2 . 11,79	Polaris.
1 . 57 . 11,87			11,91	6,93	55,02			1 . 58 . 6,88	α Arietis.
13 . 5 . 30,45			30,38			0,52	54,94	13 . 6 . 25,60	⊙ 2 L.
15 . 26 . 55,43			55,49	50,77	55,28			15 . 27 . 50,76	α Coronæ Bor.
17 . 26 . 31,24			31,25	26,56	55,31			17 . 27 . 26,57	α Ophiuchi.
19 . 41 . 59,70			59,69	55,08	55,39			19 . 42 . 55,06	α Aquilæ.
19 . 46 . 28,32			28,31	23,67	55,36			19 . 47 . 23,68	β Aquilæ.
20 . 8 . 11,34			11,24	6,54	55,30			20 . 9 . 6,62	α^2 Capricorni.
23 . 59 . 9,45			9,51	4,92	55,41			0 . 0 . 4,97	α Andromedæ.
1 . 57 . 11,30			11,34	6,94	55,60		55,46	1 . 58 . 6,84	α Arietis.
8 . 55 . 28,65			28,68			0,58	55,41	8 . 56 . 24,31	☽ 2 L.
9 . 18 . 24,63			24,64					9 . 19 . 20,27	Mars 2 L.
9 . 58 . 50,20			50,21	46,01	55,80			9 . 59 . 45,86	Regulus.
12 . 14 . 25,71			25,66					12 . 15 . 21,37	Mercury 2 L.
13 . 7 . 1,31			6,36					13 . 9 . 2,09	⊙'s center.
13 . 9 . 11,54									
19 . 41 . 59,16			59,15	55,07	55,92			19 . 42 . 55,04	α Aquilæ.
19 . 46 . 27,89			27,88	23,66	55,78			19 . 47 . 23,77	β Aquilæ.
21 . 22 . 8,90			8,83	4,75	55,92			21 . 23 . 4,76	β Aquarii.
23 . 59 . 8,93			8,99	4,92	55,93			0 . 0 . 4,98	α Andromedæ.

Error of Collimation = + 0″,97. From Oct. 10 = – 1″,93.
Level Error = – 7″,03. From Oct. 10 = + 3″,52.
The Meridian Error by Polaris SP Oct. 16 and Polaris Oct. 17, (allowing + 0^s,35 for loss of clock) is – 2″,38, which with a correction + 1″,26, is adopted from Oct. 10. (See Introduction.)

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Oct. 12	Polaris................	36.19,6	44.37,4	52.58,0	1.20,5	......	......	1 . 26 . 9,6	+ 4 . 58,60	G.
	Mars 2 L......... ...	1,9	15,8	29,3	43,5	57,4	11,6	9 . 21 . 23,3		B.
	☽ 2 L.......... (cloudy)	2,7	16,8	31,3	45,7	0,1	14,3	9 . 45 . 28,9		B.
	Regulus	8,3	22,1	35,7	49,9	3,8	17,2	9 . 59 . 30,9		B.
	γ Leonis	24,2	38,7	53,1	7,6	21,8	36,1	10 . 10 . 50,3		B.
Oct. 13	α Herculis... (very cloudy)	......	......	......	20,9	34,3	47,6	17 . 7 . 2,3	− 20,86	B.
	α Ophiuchi	48,9	2,4	16,1	30,0	43,8	57,5	17 . 27 . 11,3		B.
	α Aquilæ............	18,1	31,1	45,0	58,7	12,3	26,0	19 . 42 . 39,2		B.
	β Aquilæ............	46,3	0,1	13,7	27,2	40,7	54,2	19 . 47 . 7,7		B.
	c Sagittarii..... (flaring)	2,1	17,3	32,7	48,2	3,1	18,3	19 . 52 . 33,7		B.
	α^2 Capricorni..........	28,8	42,3	56,1	10,1	23,7	37,3	20 . 8 . 51,1		B.
	β Aquarii.......	27,5	41,1	54,8	8,2	20,8	35,2	21 . 22 . 48,7		B.
	γ Capricorni	30,7	45,1	59,1	13,2	27,1	41,2	21 . 30 . 55,4		B.
	δ Capricorni..........	30,1	44,0	58,1	12,4	26,2	40,1	21 . 37 . 54,2		B.
	α Aquarii............	53,8	7,3	20,9	34,3	48,1	1,2	21 . 57 . 14,9		B.
	σ Aquarii............	29,8	43,4	57,1	11,1	24,9	38,3	22 . 21 . 52,0		B.
	Uranus................	8,4	21,7	35,4	49,2	2,5	16,1	22 . 43 . 29,3		B.
	α Pegasi..............	6,8	20,4	34,2	48,3	2,2	16,2	22 . 56 . 29,4		B.
	κ^1 Piscium............	4,2	17,5	31,0	44,5	58,1	11,4	23 . 18 . 24,8		B.
	α Andromedæ.........	22,4	37,4	53,1	8,4	23,4	38,9	23 . 59 . 54,2		B.
Oct. 16	Regulus..............	5,9	19,6	33,1	47,2	0,8	14,7	9 . 59 . 28,2		B.
	Polaris SP.. (very cloudy)	......	......	53. 0,7	1.16,6	9.37,8	17.59,3	13	− 4 . 7,26	B.
Oct. 17	⊙ 1 L................	52,5	6,2	19,7	33,5	47,1	0,8	13 . 26 . 14,3		B.
	⊙ 2 L................	3,4	17,1	30,8	44,4	57,9	11,8	13 . 28 . 25,4		B.
	α Ophiuchi	45,7	59,4	13,4	27,4	41,1	54,6	17 . 27 . 8,4		B.
	α Aquilæ	14,7	28,5	42,2	55,9	9,2	22,9	19 . 42 . 36,4		B.
	β Aquilæ	43,7	57,2	11,0	24,3	38,1	51,2	19 . 47 . 4,9		B.
	α^2 Capricorni... (cloudy)	25,7	39,8	53,3	7,6	21,4	34,9	20 . 8 . 48,6		B.
	β Aquarii............	24,7	38,4	51,8	5,7	18,9	32,3	21 . 22 . 45,7		B.
	α Aquarii............	50,8	4,5	18,1	31,9	45,2	58,4	21 . 57 . 11,9		B.
	Uranus................	22,1	55,4	9,6	23,2	36,6	50,1	22 . 43 . 3,5		B.
	α Pegasi..............	3,9	17,7	31,8	45,5	59,4	13,2	22 . 56 . 26,9		B.
	α Andromedæ.........	19,6	34,9	50,2	5,7	20,8	35,6	23 . 59 . 51,1		B.
	Polaris................	36.16,2	44.29,5	52.52,6	1.15,4	9.25,7	17.45,3	1 . 26 . 1,6		B.
	α Arietis.............	23,5	38,0	52,9	7,6	22,2	36,4	1 . 57 . 51,0		B.
	Mars 2 L.............	24,5	38,4	52,6	6,7	20,5	34,4	9 . 32 . 48,5		B.
	Regulus..............	4,8	18,9	32,8	46,9	0,4	14,2	9 . 59 . 27,7		B.
	β Leonis.............	7,7	21,3	35,1	49,2	3,1	17,0	11 . 40 . 30,9		B.
	Venus 2 L.. (very cloudy)	36,6	49,8	3,6	17,0	30,6	43,6	12 . 36 . 57,5		B.
	(a) Polaris SP............	......	44.46,3	......	1.12,4	......	......	13 . 26 . 41,7	− 2 . 45,60	B.
Oct. 18	⊙ 1 L................	35,9	49,3	3,4	17,2	30,8	44,1	13 . 29 . 57,7		B.
	⊙ 2 L................	47,3	0,9	14,7	28,4	42,0	55,3	13 . 32 . 9,2		B.
	β Leonis.............	6,8	20,5	34,3	48,3	2,4	16,1	11 . 40 . 30,1		B.
	Venus 2 L.. (hazy and faint)	11,5	24,7	38,3	51,7	5,5	18,6	12 . 41 . 31,8		B.
	Polaris SP............	36.23,6	44.43,3	53. 0,8	1.11,7	9.35,2	17.59,7	13 . 26 . 34,5		B.
Oct 19	⊙ 1 L................	20,8	34,5	48,2	2,2	15,8	29,3	13 . 33 . 43,0		B.
	⊙ 2 L................	32,0	45,9	59,7	13,3	27,0	40,7	13 . 35 . 54,3		B.
	Arcturus..... } ... (hazy)	......	......	2,8	17,1	31,0	45,1	14 . 7 . 59,4	− 14,36	B.
	α Coron. Bor. } ... (hazy)	......	......	......	50,0	5,1	20,2	15 . 27 . 35,1	− 22,54	B.
	α Herculis... } ... (hazy)	......	......	......	16,7	30,4	44,1	17 . 6 . 58,1	− 20,68	B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*.
The Transit levelled Oct. 18, 1^h.

(*a*) Very cloudy and unsatisfactory: not used for Meridian Error.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	
1 . 1 . 15,62		– 1,12	19,49	13,91	54,42	0,58	55,99	1 . 2 . 15,50	Polaris.
9 . 20 . 43,26			43,27			0,70	56,01	9 . 21 . 39,55	Mars 2 L.
9 . 44 . 45,69			45,70					9 . 45 . 41,99	☽ 2 L.
9 . 58 . 49,70			49,71	46,03	56,32			9 . 59 . 46,01	Regulus.
10 . 10 . 7,40			7,43					10 . 11 . 3,74	γ Leonis.
17 . 6 . 20,41			20,42	17,19	56,77			17 . 7 . 16,93	α Herculis.
17 . 26 . 30,00			30,01	26,53	56,52			17 . 27 . 26,53	α Ophiuchi.
19 . 41 . 58,63			58,62	55,05	56,43			19 . 42 . 55,20	α Aquilæ.
19 . 46 . 27,13			27,12	23,64	56,52			19 . 47 . 23,71	β Aquilæ.
19 . 51 . 47,92			47,74					19 . 52 . 44,33	c Sagittarii.
20 . 8 . 9,91			9,81	6,51	56,70			20 . 9 . 6,40	α^2 Capricorni.
21 . 22 . 8,05			7,98	4,74	56,76			21 . 23 . 4,61	β Aquarii.
21 . 30 . 13,11			12,99					21 . 31 . 9,63	γ Capricorni.
21 . 37 . 12,16			12,04					21 . 38 . 8,68	δ Capricorni.
21 . 56 . 34,36			34,31	30,87	56,56			21 . 57 . 30,96	α Aquarii.
22 . 21 . 10,94			10,85					22 . 22 . 7,51	σ Aquarii.
22 . 42 . 48,95			48,87					22 . 43 . 45,54	Uranus.
22 . 55 . 48,22			48,23	44,88	56,65			22 . 56 . 44,91	α Pegasi.
23 . 17 . 44,50			44,45					23 . 18 . 41,14	κ^1 Piscium.
23 . 59 . 8,26			8,32	4,91	56,59			0 . 0 . 5,03	α Andromedæ.
9 . 58 . 47,07			47,08	46,13	59,05	0,68	58,75	9 . 59 . 46,11	Regulus.
13 . 1 . 21,34	19,31		17,56	13,66	56,10			1 . 2 . 16,68	Polaris SP.
13 . 25 . 33,44 13 . 27 . 44,40			} 38,84					13 . 27 . 37,97	⊙'s center.
17 . 26 . 27,14			27,15	26,47	59,32			17 . 27 . 26,39	α Ophiuchi.
19 . 41 . 55,69			55,68	54,99	59,31			19 . 42 . 54,99	α Aquilæ.
19 . 46 . 24,34			24,33	23,58	59,25			19 . 47 . 23,64	β Aquilæ.
20 . 8 . 7,33			7,23	6,45	59,22			20 . 9 . 6,55	α^2 Capricorni.
21 . 22 . 5,36			5,29	4,69	59,40			21 . 23 . 4,65	β Aquarii.
21 . 56 . 31,54			31,49	30,83	59,34			21 . 57 . 30,86	α Aquarii.
22 . 42 . 22,93			22,85					22 . 43 . 22,24	Uranus.
22 . 55 . 45,49			45,50	44,86	59,36			22 . 56 . 44,90	α Pegasi.
23 . 59 . 5,42			5,49	4,91	59,42			0 . 0 . 4,92	α Andromedæ.
1 . 1 . 9,47	11,79		13,42	13,66	60,24		59,43	1 . 2 . 12,88	Polaris.
1 . 57 . 7,37			7,41	7,02	59,61			1 . 58 . 6,89	α Arietis.
9 . 32 . 6,52			6,54			0,66	59,36	9 . 33 . 6,16	Mars 2 L.
9 . 58 . 46,53			46,54	46,16	59,62			9 . 59 . 46,17	Regulus.
11 . 39 . 49,19			49,21	48,90	59,69			11 . 40 . 48,89	β Leonis.
12 . 36 . 16,96			16,91					12 . 37 . 16,62	Venus 2 L.
13 . 1 . 27,87			24,09	13,67	49,58			1 . 2 . 23,81	Polaris SP.
13 . 29 . 16,92 13 . 31 . 28,26			} 22,50					13 . 31 . 22,23	⊙'s center.
11 . 39 . 48,36			48,38	48,92	60,54	0,73	60,25	11 . 40 . 48,98	β Leonis.
12 . 40 . 51,73			51,68					12 . 41 . 52,32	Venus 2 L.
13 . 1 . 21,26			17,48	13,69	56,21			1 . 2 . 18,12	Polaris SP.
13 . 33 . 1,97 13 . 35 . 13,27			} 7,53					13 . 35 . 8,19	⊙'s center.
14 . 7 . 16,72			16,75	17,43	60,68			14 . 8 . 17,43	Arcturus.
15 . 26 . 50,06			50,12	50,71	60,59			15 . 27 . 50,84	α Coronæ Bor.
17 . 6 . 16,66			16,58	17,11	60,53			17 . 7 . 17,35	α Herculis.

Error of Collimation = – 1",93.

Level Error = + 3",52. From Oct. 16 = + 3",56.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Oct. 19	α Ophiuchi	44,2	58,0	12,0	25,8	39,4	53,1	17 . 27 . 6,9		B.
	α Aquilæ	13,3	27,1	40,3	54,3	7,7	21,1	19 . 42 . 35,1		B.
	β Aquilæ	42,9	56,4	9,3	23,1	36,4	49,6	19 . 47 . 3,3		B.
	Mars 2 L. (cloudy)	53,4	7,3	21,3	35,3	49,4	3,7	9 . 37 . 17,3		B.
	Regulus	3,6	17,1	31,0	45,0	58,6	12,3	9 . 59 . 26,1		B.
	Venus 2 L. (haze)	46,3	59,7	13,3	26,7	40,4	53,9	12 . 47 . 7,6		B.
	Mercury 2 L. (cloudy)	4,7	18,3	31,6	45,3	59,3	12,5	13 . 4 . 25,9		B.
Oct. 20	☉ 1 L.	6,1	19,7	34,0	47,4	1,1	14,8	13 . 38 . 28,3		B.
	☉ 2 L.	18,0	31,4	45,1	59,0	12,7	26,2	13 . 40 . 40,0		B.
	Arcturus (cloudy)	......	......	1,9	16,2	30,2	44,7	14 . 8	− 7,22	B.
	α Coronæ Borealis	3,9	18,9	34,2	49,3	4,3	19,4	15 . 28 . 34,2		B.
	α Aquilæ	12,7	26,3	40,0	53,9	7,3	20,9	19 . 43 . 34,2		B.
	β Aquilæ	41,3	55,1	8,9	22,4	35,9	49,1	19 . 48 . 2,8		G.
	β Aquarii	22,8	36,0	49,4	3,2	16,7	30,0	21 . 22 . 43,4		G.
	α Aquarii	48,8	2,4	15,8	29,6	42,9	56,1	21 . 58 . 9,4		G.
	Uranus	23,8	37,7	51,1	5,0	18,4	......	22 . 43	+ 13,59	G.
Oct. 23	Polaris SP	37.20,8	45.41,0	53,55,7	2. 6,6	10.30,5	18.54,8	13 . 27 . 12,3		B.
	Venus 2 L. } (hazy & faint)	9,8	23,7	37,0	50,7	4,2	17,5	13 . 5 . 30,8		B.
	Mercury 2 L. } (hazy & faint)	50,4	3,9	17,4	31,3	44,8	58,3	13 . 29 . 12,1		B.
Oct. 24	☉ 1 L.	13,3	27,2	41,3	54,9	8,3	22,2	13 . 53 . 36,0		B.
	☉ 2 L.	25,7	39,2	53,0	7,1	20,8	34,3	13 . 55 . 48,0		B.
	Arcturus	29,5	44,1	58,4	12,9	27,1	41,3	14 . 8 . 55,7		B.
	α Coronæ Borealis	0,6	15,5	30,8	45,9	0,9	16,0	15 . 28 . 30,9		B.
	Antares	40,9	55,8	11,0	26,1	40,8	55,8	16 . 20 . 10,9		B.
	α Ophiuchi	40,1	53,8	7,8	21,7	35,3	48,9	17 . 28 . 2,8		B.
	☽ 1 L.	50,5	6,5	22,6	38,3	54,1	10,1	18 . 45 . 25,9		B.
	τ Sagittarii	1,6	16,8	31,8	47,3	2,3	17,6	18 . 57 . 32,7		B.
	h^2 Sagittarii	3,7	18,9	33,9	48,7	3,4	18,1	19 . 27 . 32,9		B.
	α Aquilæ	8,9	22,8	36,2	49,8	3,4	17,1	19 . 43 . 30,5		B.
	β Aquilæ	37,9	51,4	5,0	18,8	32,1	45,5	19 . 47 . 59,1		B.
	Mars 2 L. (unsteady)	53,7	7,8	21,7	35,9	49,3	......	9 . 48	+ 13,91	B.
	Regulus	59,7	13,4	27,2	41,0	54,9	8,8	10 . 0 . 22,1		B.
	Polaris SP. (haze)	37.16,8	......	53.52,7	2. 6,4	10.27,7	......	13.........	+ 6 . 15,73	B.
Oct. 26	α Aquilæ	7,5	21,2	35,1	48,6	2,2	15,5	19 . 43 . 28,9		B.
	β Aquilæ	36,4	49,9	3,7	17,2	30,8	44,2	19 . 47 . 57,4		B.
	α^2 Capricorni	18,8	32,1	46,2	0,3	13,9	27,3	20 . 9 . 41,2		B.
	ψ Capricorni	41,3	56,1	11,2	26,1	41,3	56,0	20 . 37 . 11,1		B.
	☽ 1 L.	6,6	21,5	36,8	52,0	7,1	22,0	20 . 45 . 37,1		B.
	ζ Capricorni	37,3	52,1	7,0	21,3	35,9	50,4	21 . 18 . 5,1		B.
	β Aquarii	17,4	30,9	44,7	58,2	11,5	25,1	21 . 23 . 38,7		B.
	γ Capricorni	20,8	34,9	49,2	3,4	17,1	31,0	21 . 31 . 45,2		B.
	α Aquarii	43,9	57,2	11,1	24,3	37,6	50,9	21 . 58 . 4,5		B.
	Uranus	51,1	4,8	19,0	32,2	45,9	59,2	22 . 43 . 12,9		B.
	α Pegasi	56,4	10,2	24,3	38,2	52,1	5,8	22 . 57 . 19,9		B.
	α Andromedæ	12,4	27,4	43,1	58,4	13,6	28,7	0 . 0 . 44,1		B.
	Polaris (flaring)	36.57,6	45.19,8	53.42,3	2. 4,2	10.20,7	18.30,7	1 . 26 . 54,4		B.
	(a) α Arietis	......	......	46,3	1,0	15,4	29,6	1 . 58 . 44,3	− 14,60	B.
	Mars 2 L.	13,6	27,3	41,5	55,4	9,2	23,2	9 . 53 . 36,7		B.
	Regulus	58,1	11,9	25,7	39,5	53,3	7,1	10 . 0 . 20,5		B.
	Polaris SP. (cloudy)	37.15,7	45.32,3	......	2. 5,5	......	......	13.........	+13.51,76	B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*.
The Transit levelled Oct. 24, 22^h.
Oct. 19, 22^h, the clock was put forward 1^m.

(a) Disturbed.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
17 . 26 . 25,63		– 1,12	25,64	26,45	60,81	0,73	60,25	17 . 27 . 26,42	α Ophiuchi.
19 . 41 . 54,13			54,12	54,95	60,83			19 . 42 . 54,97	α Aquilæ.
19 . 46 . 23,00			22,99	23,54	60,55			19 . 47 . 23,84	β Aquilæ.
9 . 36 . 35,39			35,41			0,70	60,93	9 . 37 . 36,62	Mars 2 L.
9 . 58 . 44,81			44,82	46,21	61,39			9 . 59 . 46,04	Regulus.
12 . 46 . 26,84			26,79				0,93	12 . 46 . 28,09	Venus 2 L.
13 . 3 . 45,37			45,31					13 . 3 . 46,62	Mercury 2 L.
13 . 37 . 47,34			} 53,04					13 . 38 . 54,37	⊙'s center.
13 . 39 . 58,92									
14 . 8 . 16,03			16,06	17,43	1,37			14 . 8 . 17,40	Arcturus.
15 . 27 . 49,17			49,23	50,70	1,47			15 . 27 . 50,61	α Coronæ Bor.
19 . 42 . 53,61			53,60	54,94	1,34			19 . 42 . 55,10	α Aquilæ.
19 . 47 . 22,21			22,20	23,53	1,33			19 . 47 . 23,71	β Aquilæ.
21 . 22 . 3,07			3,00	4,65	1,65			21 . 22 . 4,55	β Aquarii.
21 . 57 . 29,29			29,24	30,80	1,56			21 . 57 . 30,81	α Aquarii.
22 . 43 . 4,79			4,71					22 . 43 . 6,30	Uranus.
13 . 2 . 14,53			10,75	13,46	2,71	0,73	4,38	1 . 2 . 15,53	Polaris SP.
13 . 4 . 50,52			50,46					13 . 4 . 55,24	Venus 2 L.
13 . 28 . 31,17			31,09					13 . 28 . 35,88	Mercury 2 L.
13 . 52 . 54,74			} 0,72					13 . 54 . 5,52	⊙'s center.
13 . 55 . 6,87									
14 . 8 . 12,71			12,74	17,46	4,72			14 . 8 . 17,55	Arcturus.
15 . 27 . 45,80			45,86	50,69	4,83			15 . 27 . 50,71	α Coronæ Bor.
16 . 19 . 25,90			25,73	30,78	5,05			16 . 19 . 30,61	Antares.
17 . 27 . 21,48			21,49	26,39	4,90			17 . 27 . 26,40	α Ophiuchi.
18 . 44 . 38,29			38,09					18 . 44 . 43,04	☽ 1 L.
18 . 56 . 47,16			46,98					18 . 56 . 51,94	τ Sagittarii.
19 . 26 . 48,52			48,36					19 . 26 . 53,33	h^2 Sagittarii.
19 . 42 . 49,82			49,81	54,87	5,06			19 . 42 . 54,79	α Aquilæ.
19 . 47 . 18,55			18,54	23,47	4,93			19 . 47 . 23,52	β Aquilæ.
9 . 48 . 35,59			35,61				5,11	9 . 48 . 41,02	Mars 2 L.
9 . 59 . 41,01			41,02	46,35	5,33			9 . 59 . 46,43	Regulus.
13 . 2 . 11,63			7,85	13,49	5,64			1 . 2 . 13,36	Polaris SP.
19 . 42 . 48,43			48,42	54,84	6,42	0,71	5,85	19 . 42 . 54,85	α Aquilæ.
19 . 47 . 17,09			17,08	23,44	6,36			19 . 47 . 23,52	β Aquilæ.
20 . 8 . 59,97			59,87	6,32	6,45			20 . 9 . 6,31	α^2 Capricorni.
20 . 36 . 26,16			25,99					20 . 36 . 32,45	ψ Capricorni.
20 . 44 . 51,87			51,71					20 . 44 . 58,17	☽ 1 L.
21 . 17 . 21,30			21,14					21 . 17 . 27,62	ζ Capricorni.
21 . 22 . 58,07			58,00	4,58	6,58			21 . 23 . 4,48	β Aquarii.
21 . 31 . 3,08			2,96					21 . 31 . 9,45	γ Capricorni.
21 . 57 . 24,21			24,16	30,72	6,56			21 . 57 . 30,66	α Aquarii.
22 . 42 . 32,15			32,07					22 . 42 . 38,59	Uranus.
22 . 56 . 38,13			38,14	44,78	6,64			22 . 56 . 44,67	α Pegasi.
23 . 59 . 58,25			58,32	4,88	6,56			0 . 0 . 4,88	α Andromedæ.
1 . 1 . 58,53	0,85		2,48	13,19	10,71		6,56	1 . 2 . 9,07	Polaris.
1 . 58 . 0,72			0,76	7,11	6,35			1 . 58 . 7,38	α Arietis.
9 . 52 . 55,27			55,29					9 . 53 . 2,14	Mars 2 L.
9 . 59 . 39,45			39,46	46,41	6,95			9 . 59 . 46,32	Regulus.
13 . 2 . 9,59	7,56		5,81	13,08	7,27			1 . 2 . 12,75	Polaris SP.

Error of Collimation = – 1″,93.

Level Error = + 3″,56. (The same Level Error found on Oct. 24, as on Oct. 18.)

The Meridian Error by Polaris and Polaris SP Oct. 26, allowing + 0s,36 for loss of clock and + 0s,11 for change of Æ., is – 2″,38. This being the same as by the same star on Oct. 17, the preceding determination is continued.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Oct. 28	Polaris SP............	37.14,7	......	53.49,5	......	10.24,8	18.46,2	13.........	+ 2 . 4,29	B.
	Venus 2 L...........	20,7	34,5	48,8	2,2	15,6	29,0	13 . 28 . 42,4		B.
	Mercury 2 L.. (very faint)	48,4	2,4	16,1	29,6	43,3	57,1	14 . 0 . 10,8		B.
	Arcturus............	26,1	40,2	54,7	9,1	22,9	37,5	14 . 8 . 52,0		B.
Oct. 29	⊙ 1 L...............	22,9	36,9	50,7	4,9	18,8	32,5	14 . 12 . 45,9		B.
	⊙ 2 L...............	36,3	50,1	3,9	18,0	31,9	46,0	14 . 15 . 0,1		B.
	ϵ Bootis..............	1,7	16,9	32,1	47,4	2,3	17,6	14 . 38 . 32,7		B.
	α Coronæ Borealis.....	56,6	11,9	27,0	42,2	57,4	12,3	15 . 28 . 27,4		B.
	Antares..............	37,4	52,3	7,4	22,4	37,0	52,1	16 . 20 . 7,1		B.
	α Herculis... (very cloudy)	26,9	40,7	54,8	8,9	22,4	36,2	17 . 7 . 50,3		B.
	α Ophiuchi...........	36,3	50,1	4,0	17,8	31,7	45,2	17 . 27 . 59,1		B.
	β Aquarii...........	15,4	29,1	42,5	56,1	9,7	23,1	21 . 23 . 36,5		B.
	α Aquarii...........	41,7	55,1	8,7	22,4	36,0	49,1	21 . 58 . 2,5		B.
	α Pegasi..............	54,6	8,2	22,1	36,3	50,1	4,0	22 . 57 . 17,8		B.
	ϕ Aquarii...........	10,1	23,5	36,9	50,8	4,1	17,8	23 . 6 . 31,1		B.
	☽ 1 L...............	58,0	11,8	25,7	39,7	53,6	7,3	23 . 32 . 21,1		B.
	q Piscium............	45,7	59,2	12,8	26,5	39,9	53,2	23 . 54 . 6,6		B.
	α Andromedæ........	10,2	25,4	41,0	56,4	11,5	26,7	0 . 0 . 41,9		B.
	ι Piscium............	20,7	33,9	47,5	1,4	14,7	28,0	0 . 17 . 41,2		B.
	Polaris...............	36.56,2	45.17,3	53.41,6	2. 3,8	10.18,4	18.34,5	1 . 26 . 51,7		B.
	α Arietis..............	14,7	29,1	44,2	58,6	13,2	27,8	1 . 58 . 42,1		B.
	Mars 2 L............	38,5	52,4	6,4	20,5	34,4	47,8	10 . 0 . 2,3		B.
	(a) β Leonis.............	......	......	......	......	54,3	8,1	11 . 41 . 22,0	- 27,89	B.
	Polaris SP...........	37.11,3	45.31,7	53.46,4	1.59,8	10.21,5	18.44,6	13 . 27 . 4,2		B.
	Venus 2 L...........	1,4	14,9	28,6	42,3	55,8	9,4	13 . 33 . 22,7		B.
Oct. 30	⊙ 1 L...............	15,1	29,0	43,2	57,1	10,9	24,7	14 . 16 . 38,5		B.
	⊙ 2 L...............	28,8	43,0	56,7	11,0	24,6	38,1	14 . 18 . 52,0		B.
	ϵ Bootis....... (cloudy)	......	......	......	......	1,4	17,0	14 . 38 . 32,1	- 30,39	B.
	α Coronæ Bor... (cloudy)	56,1	11,4	26,4	42,0	56,8	12,0	15 . 28 . 26,8		B.
	α Herculis...... (cloudy)	......	......	......	......	22,0	35,8	17 . 7 . 49,5	- 27,76	B.
	α Aquilæ............	5,5	18,8	32,1	46,2	59,4	13,1	19 . 43 . 26,3		B.
	β Aquilæ............	33,8	47,1	0,8	14,7	28,1	41,2	19 . 47 . 54,7		B.
	α^2 Capricorni.........	15,7	29,7	43,4	57,1	11,1	24,7	20 . 9 . 38,5		B.
	β Aquarii............	14,8	28,2	41,7	55,5	9,2	22,5	21 . 23 . 36,1		B.
	α Pegasi..............	54,1	8,1	21,9	35,8	49,4	3,3	22 . 57 . 17,2		B.
	α Andromedæ........	10,0	24,9	40,1	55,4	10,8	26,1	0 . 0 . 41,1		B.
	☽ 1 L...............	11,8	25,7	39,4	53,5	7,2	21,0	0 . 26 . 34,9		B.
	ϵ Piscium............	46,2	59,7	13,8	27,1	40,4	54,1	0 . 55 . 7,7		B.
	Polaris...............	36.58,2	45.16,8	......	2. 6,5	10.19,2	18.32,7	1 . 26 . 52,4	- 1 . 22,68	B.
Oct. 31	β Aquarii...........	14,1	27,7	41,1	55,0	8,5	21,8	21 . 23 . 35,4		B.
	α Aquarii...........	40,5	53,9	8,1	21,2	34,5	48,0	21 . 58 . 1,6		B.
	(b) ⁎Mag.8½N.P.D.24°.11′	49,1	23,2	56,4	28,3	2,8	35,2	22 . 35 . 7,9		B.
	Uranus...............	29,6	43,1	56,8	10,9	24,1	37,7	22 . 42 . 51,3		B.
	α Pegasi..............	53,9	7,2	21,1	35,2	49,1	3,1	22 . 57 . 16,9		B.
	α Andromedæ........	9,5	24,7	40,1	55,3	10,8	25,7	0 . 0 . 41,1		B.
	ι Piscium............	20,1	33,3	46,6	0,2	13,7	27,1	0 . 17 . 40,0		B.
	A.S.C. 79............	7,1	20,4	34,1	47,3	1,1	14,3	0 . 40 . 27,7		B.
	ϵ Piscium............	45,9	59,3	13,2	26,8	40,3	53,4	0 . 55 . 7,2		B.
	Polaris...............	36.58,7	45.17,3	......	2. 7,2	10.16,5	18.34,7	1 . 26 . 51,4	- 1 . 22,68	B.
	☽ 1 L...............	49,9	3,7	17,8	32,0	45,6	59,8	1 . 22 . 13,9		B.
	Polaris SP..... (cloudy)	37.10,3	45.27,8	......	......	10.19,7	18.42,2	13.........	+ 4 . 8,41	B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*. The Transit levelled Nov. 2, 4ʰ.

(*a*) Hurried.

(*b*) Hazy and very faint.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	
13 . 2 . 8,09	6,06	– 0,33	5,54	12,55	7,01	0,57	8,04	1 . 2 . 13,89	Polaris SP.
13 . 28 . 1,88			1,85					13 . 28 . 10,21	Venus 2 L.
13 . 59 . 29,68			29,64					13 . 59 . 38,01	Mercury 2 L.
14 . 8 . 8,93			8,99	17,48	8,49			14 . 8 . 17,36	Arcturus.
14 . 12 . 4,66 14 . 14 . 18,05			} 11,31					14 . 13 . 19,69	⊙'s center.
14 . 37 . 47,25			47,34	55,64	8,30			14 . 37 . 55,73	ϵ Bootis.
15 . 27 . 42,11			42,20	50,67	8,47			15 . 27 . 50,61	α Coronæ Bor.
16 . 19 . 22,24			22,13	30,76	8,63			16 . 19 . 30,56	Antares.
17 . 7 . 8,60			8,66	17,00	8,34			17 . 7 . 17,11	α Herculis.
17 . 27 . 17,75			17,80	26,33	8,53			17 . 27 . 26,26	α Ophiuchi.
21 . 22 . 56,06			56,03	4,54	8,51			21 . 23 . 4,58	β Aquarii.
21 . 57 . 22,21			22,20	30,69	8,49			21 . 57 . 30,76	α Aquarii.
22 . 56 . 36,16			36,21	44,75	8,54			22 . 56 . 44,79	α Pegasi.
23 . 5 . 50,61			50,58					23 . 5 . 59,17	ϕ Aquarii.
23 . 31 . 39,60			39,58					23 . 31 . 48,18	☽ 1 L.
23 . 53 . 26,27			26,25					23 . 53 . 34,86	q Piscium.
23 . 59 . 56,16			56,25	4,86	8,61			0 . 0 . 4,86	α Andromedæ.
0 . 17 . 1,05			1,05				8,61	0 . 17 . 9,67	ι Piscium.
1 . 1 . 57,64	59,96		0,44	12,43	11,99			1 . 2 . 9,07	Polaris.
1 . 57 . 58,53			58,60	7,14	8,54			1 . 58 . 7,26	α Arietis.
9 . 59 . 20,32			20,35			0,51	8,64	9 . 59 . 29,20	Mars 2 L.
11 . 40 . 40,24			40,28	49,16	8,88			11 . 40 . 49,17	β Leonis.
13 . 2 . 5,64	4,30		3,78	12,32	8,54			1 . 2 . 12,70	Polaris SP.
13 . 32 . 42,15			42,11					13 . 32 . 51,04	Venus 2 L.
14 . 15 . 56,93 14 . 18 . 10,60			} 3,71					14 . 17 . 12,65	⊙'s center.
14 . 37 . 46,44			46,50	55,64	9,14			14 . 37 . 55,45	ϵ Bootis.
15 . 27 . 41,64			41,71	50,67	8,96			15 . 27 . 50,68	α Coronæ Bor.
17 . 7 . 8,01			8,05	17,00	8,95			17 . 7 . 17,05	α Herculis.
19 . 42 . 45,91			45,92	54,78	8,86			19 . 42 . 54,98	α Aquilæ.
19 . 47 . 14,34			14,34	23,38	9,04			19 . 47 . 23,40	β Aquilæ.
20 . 8 . 57,17			57,11	6,26	9,15			20 . 9 . 6,18	α^2 Capricorni.
21 . 22 . 55,43			55,39	4,52	9,13			21 . 23 . 4,48	β Aquarii.
22 . 56 . 35,69			35,72	44,74	9,02			22 . 56 . 44,85	α Pegasi.
23 . 59 . 55,49			55,55	4,86	9,31			0 . 0 . 4,70	α Andromedæ.
0 . 25 . 53,36			53,35				9,15	0 . 26 . 2,51	☽ 1 L.
0 . 54 . 27,00			27,00					0 . 54 . 36,17	ϵ Piscium.
1 . 1 . 58,29	59,90		0,38	12,21	11,83			1 . 2 . 9,55	Polaris.
21 . 22 . 54,80		+ 0,38	54,80	4,51	9,71	0,44	9,13	21 . 23 . 4,32	β Aquarii.
21 . 57 . 21,11			21,13	30,66	9,53			21 . 57 . 30,66	α Aquarii.
22 . 33 . 28,99			29,17					22 . 33 . 38,71	∗ N.P.D. 24°. 11′.
22 . 42 . 10,50			10,50					22 . 42 . 20,05	Uranus.
22 . 56 . 35,21			35,27	44,73	9,46			22 . 56 . 44,82	α Pegasi.
23 . 59 . 55,32			55,40	4,85	9,45			0 . 0 . 4,97	α Andromedæ.
0 . 17 . 0,14			0,16				9,57	0 . 17 . 9,74	ι Piscium.
0 . 39 . 47,43			47,46					0 . 39 . 57,04	A.S.C. 79.
0 . 54 . 26,59			26,63					0 . 54 . 36,22	ϵ Piscium.
1 . 1 . 58,29	59,90		59,35	12,03	12,68			1 . 2 . 8,94	Polaris.
1 . 21 . 31,81			31,86					1 . 21 . 41,45	☽ 1 L.
13 . 2 . 3,41	2,07		2,66	11,96	9,30	0,47	9,56	1 . 2 . 12,47	Polaris SP.

Error of Collimation = – 1″,93.

Level Error = + 3″,56. From Mars Oct. 29 = + 3″,20.

The two sets of three consecutive Transits of Polaris Oct. 28—30 give for Meridian Error – 1″,73 and – 1″,45, the mean of which, with the correction + 1″,26, is adopted from Oct. 28.

The two sets of three consecutive Transits of Polaris on Oct. 31 and Nov. 1 give for Meridian Error – 0″,81 and – 0″,94. The mean corrected by + 1″,26, is adopted from Oct. 31.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Nov. 1	β Aquarii	13,8	27,3	41,4	54,8	8,2	21,4	21 . 23 . 35,3		B.
	α Aquarii	40,1	53,8	7,2	20,7	34,1	47,3	21 . 58 . 0,1		B.
	Uranus (indistinct)	26,0	39,4	53,4	7,4	20,6	34,1	22 . 42 . 47,7		B.
	α Pegasi	53,2	6,9	21,2	35,1	48,9	2,5	22 . 57 . 16,2		B.
	α Andromedæ	9,2	24,3	39,5	55,1	10,3	25,1	0 . 0 . 40,2		B.
	A.S.C. 79	6,4	20,2	33,4	47,1	0,4	13,9	0 . 40 . 27,3		B.
	Polaris	37. 0,3	45.19,2	53.40,3	2. 1,4	10.15,6	18.33,4	1 . 26 . 54,2		B.
	γ^1 Arietis	50,2	4,2	18,7	33,0	47,2	0,9	1 . 45 . 15,2		B.
	α Arietis	13,1	27,6	42,1	56,9	11,4	26,1	1 . 58 . 40,4		B.
	☽ 1 L.	4,0	18,2	33,0	47,6	1,7	16,0	2 . 20 . 30,5		B.
	(a) ☽ 2 L. (ragged)	29,0	43,2	58,0	12,3	26,5	40,9	2 . 22 . 55,4		B.
	ε Arietis	8,3	22,8	37,2	51,8	6,2	20,2	2 . 50 . 34,5		B.
	α Ceti	2,2	16,3	29,2	42,9	56,2	9,8	2 . 54 . 23,1		B.
	δ Arietis	33,3	47,8	2,1	16,8	30,5	44,9	3 . 2 . 58,9		B.
	Polaris SP. (haze)	37. 9,4	45.27,2	53.43,8	1.58,5	10.20,3	......	13.........	+ 8 . 19,89	B.
Nov. 2	α Aquilæ	3,4	17,2	30,8	44,3	58,2	11,4	19 . 43 . 25,1		B.
	π Arietis	26,9	40,7	54,8	9,1	23,0	36,9	2 . 40 . 50,8		B.
	ε Arietis	7,8	21,9	36,4	51,0	5,2	19,5	2 . 50 . 33,9		B.
	α Ceti	1,8	15,3	29,0	42,4	55,6	9,1	2 . 54 . 22,4		B.
	δ Arietis	32,8	47,2	1,7	15,9	30,0	44,0	3 . 2 . 58,4		B.
	☽ 2 L.	4,9	19,6	35,0	50,0	4,8	19,8	3 . 24 . 34,5		B.
	η Tauri	1,7	16,1	31,0	45,3	59,9	14,6	3 . 38 . 28,9		B.
	A^1 Tauri	17,5	31,7	46,4	1,0	15,2	29,6	3 . 55 . 44,2		B.
	Mars 2 L. (very unsteady)	3,4	17,5	31,3	45,3	58,7	12,5	10 . 8 . 26,3		B.
Nov. 5	Mars 2 L.	14,8	28,5	42,4	56,5	10,4	23,7	10 . 14 . 37,4		B.
	β Leonis	54,8	8,8	22,7	36,8	50,6	4,7	11 . 41 . 18,6		B.
	Jupiter 1 L. (hazy and faint)	19,7	......	47,0	......	14,1	......	12 . 33 . 40,4	+ 0,02	B.
	Jupiter 2 L. (hazy and faint)	......	35,5	......	2,6	......	29,2	12 . 33	− 0,02	B.
	Polaris SP.	37. 8,6	45.26,4	53.42,7	1.55,3	10.17,8	18.42,5	13 . 27 . 1,2		B.
	(b) Venus 2 L.	5,4	19,2	32,8	47,1	0,6	14,3	14 . 6 . 28,1		B.
	Arcturus	22,1	36,3	50,8	5,2	19,1	33,7	14 . 8 . 47,9		B.
Nov. 6	⊙ 1 L.	44,1	58,1	12,2	26,4	40,5	54,2	14 . 44 . 8,2		B.
	⊙ 2 L.	59,3	13,4	27,6	41,8	55,5	9,4	14 . 46 . 23,4		B.
	α Coronæ Borealis (hazy)	......	......	23,0	38,1	53,0	8,1	15 . 28 . 23,1	− 15,18	B.
	α Ophiuchi	32,1	45,8	0,1	13,8	27,3	41,1	17 . 27 . 54,7		B.
	α Aquilæ	1,1	14,7	28,3	42,1	55,7	9,1	19 . 43 . 22,8		B.
	β Aquilæ	29,9	43,7	57,1	10,8	24,1	37,5	19 . 47 . 51,1		B.
Nov. 7	(c) ⊙ 1 L.	43,2	57,4	11,3	25,9	39,9	53,4	14 . 48 . 7,4		B.
	⊙ 2 L.	58,4	12,9	26,9	41,1	55,0	9,0	14 . 50 . 22,8		B.
	α Herculis	22,0	36,1	49,9	4,0	17,7	31,4	17 . 7 . 45,4		B.
	α Aquilæ	0,7	14,3	27,7	41,4	55,1	8,5	19 . 43 . 22,1		B.
	β Aquilæ	29,1	43,1	56,6	10,1	23,6	37,0	19 . 47 . 50,7		B.
	α^2 Capricorni	11,7	25,1	39,2	53,3	7,2	20,9	20 . 9 . 34,3		B.
	α Aquarii	37,1	50,3	4,2	17,5	30,9	44,1	21 . 57 . 57,3		B.
	Uranus	7,9	21,4	35,1	48,4	2,0	15,5	22 . 42 . 28,9		B.
	α Pegasi	49,9	3,6	17,4	31,5	45,3	59,0	22 . 57 . 12,8		B.
	Mars 2 L. (unsteady)	19,2	32,7	46,7	0,7	14,3	28,3	10 . 18 . 41,6		B.
	Jupiter 1 L. (very faint)	44,4	......	11,6	......	38,6	......	12 . 35 . 5,3	+ 0,02	B.
	Jupiter 2 L. (very faint)	......	0,4	......	27,4	......	54,1	12 . 34	− 0,02	B.
	Polaris SP.	37. 7,8	45.26,2	53.44,3	1.55,5	10.18,6	18.42,4	13 . 27 . 0,7		B.
	Arcturus	20,7	35,1	49,6	4,1	18,4	32,4	14 . 8 . 46,7		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*.
The Transit levelled Nov. 7, 23^h.

(a) Correction applied to apparent Æ of 2 L for defect of illumination = + 0^s,02.

(b) Badly defined.

(c) Wind very loud during nearly all the observations of this day.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0^h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
21 . 22 . 54,60		+ 0,38	54,60	4,50	9,90	0,47	9,56	21 . 23 . 4,58	β Aquarii.
21 . 57 . 20,47			20,49	30,65	10,16			21 . 57 . 30,48	α Aquarii.
22 . 42 . 6,94			6,94					22 . 42 . 16,94	Uranus.
22 . 56 . 34,86			34,92	44,72	9,80			22 . 56 . 44,93	α Pegasi.
23 . 59 . 54,81			54,89	4,85	9,96			0 . 0 . 4,92	α Andromedæ.
0 . 39 . 46,96			46,99				10,03	0 . 39 . 57,03	A.S.C. 79.
1 . 1 . 57,77	59,38		58,83	11,90	13,07			1 . 2 . 8,88	Polaris.
1 . 44 . 32,77			32,84					1 . 44 . 42,90	γ^1 Arietis.
1 . 57 . 56,80			56,87	7,16	10,29			1 . 58 . 6,94	α Arietis.
2 . 19 . 47,29			47,35					2 . 19 . 57,43	☽ 1 L.
2 . 22 . 12,18			12,24					2 . 22 . 22,34	☽ 2 L.
2 . 49 . 51,57			51,64					2 . 50 . 1,72	ε Arietis.
2 . 53 . 42,81			42,84	52,89	10,05			2 . 53 . 52,93	α Ceti.
3 . 2 . 16,33			16,39					3 . 2 . 26,48	δ Arietis.
13 . 2 . 3,73	2,39		2,98	11,83	8,85	0,48	10,03	1 . 2 . 13,27	Polaris SP.
19 . 42 . 44,34			44,39	54,74	10,35			19 . 42 . 54,81	α Aquilæ.
2 . 40 . 8,89			8,95				10,51	2 . 40 . 19,51	π Arietis.
2 . 49 . 50,81			50,88					2 . 50 . 1,45	ε Arietis.
2 . 53 . 42,23			42,26	52,91	10,65			2 . 53 . 52,83	α Ceti.
3 . 2 . 15,72			15,78					3 . 2 . 26,35	δ Arietis.
3 . 23 . 49,80			49,87					3 . 24 . 0,45	☽ 2 L.
3 . 37 . 45,36			45,44					3 . 37 . 56,02	η Tauri.
3 . 55 . 0,80			0,87					3 . 55 . 11,46	A^1 Tauri.
10 . 7 . 45,00			45,06					10 . 7 . 55,77	Mars 2 L.
10 . 13 . 56,24		+ 0,15	56,34			0,50	12,22	10 . 14 . 8,77	Mars 2 L.
11 . 40 . 36,72			36,84	49,33	12,49			11 . 40 . 49,30	β Leonis.
12 . 33 . 0,32			1,41					12 . 33 . 13,89	Jupiter's center.
12 . 33 . 2,41									
13 . 2 . 2,07			59,05	11,14	12,09			1 . 2 . 11,54	Polaris SP.
14 . 5 . 46,79			46,80					14 . 5 . 59,31	Venus 2 L.
14 . 8 . 5,01			5,13	17,56	12,43			14 . 8 . 17,64	Arcturus.
14 . 43 . 26,24			33,85					14 . 44 . 46,38	☉'s center.
14 . 45 . 41,48									
15 . 27 . 37,88			38,03	50,67	12,64			15 . 27 . 50,57	α Coronæ Bor.
17 . 27 . 13,56			13,66	26,26	12,60			17 . 27 . 26,24	α Ophiuchi.
19 . 42 . 41,97			42,06	54,68	12,62			19 . 42 . 54,69	α Aquilæ.
19 . 47 . 10,60			10,68	23,28	12,60			19 . 47 . 23,31	β Aquilæ.
14 . 47 . 25,50			33,18			0,55	12,68	14 . 48 . 46,20	☉'s center.
14 . 49 . 40,87									
17 . 7 . 3,78			3,89	16,94	13,05			17 . 7 . 16,96	α Herculis.
19 . 42 . 41,40			41,49	54,67	13,18			19 . 42 . 54,62	α Aquilæ.
19 . 47 . 10,02			10,10	23,27	13,17			19 . 47 . 23,23	β Aquilæ.
20 . 8 . 53,10			53,10	6,15	13,05			20 . 9 . 6,24	α^2 Capricorni.
21 . 57 . 17,35			17,40	30,58	13,18			21 . 57 . 30,58	α Aquarii.
22 . 41 . 48,46			48,48					22 . 42 . 1,68	Uranus.
22 . 56 . 31,35			31,46	44,66	13,20			22 . 56 . 44,67	α Pegasi.
10 . 18 . 0,50			0,60			0,59	13,27	10 . 18 . 14,12	Mars 2 L.
12 . 34 . 24,99			26,18					12 . 34 . 39,76	Jupiter's center.
12 . 34 . 27,28									
13 . 2 . 2,21	58,96		59,19	10,47	11,28			1 . 2 . 12,78	Polaris SP.
14 . 8 . 3,86			3,98	17,58	13,60			14 . 8 . 17,60	Arcturus.

Error of Collimation = − 1″,93.

Level Error = + 3″,20. From Nov. 5 = + 4″,20.

The Meridian Error by Polaris SP Nov. 7 and Polaris Nov. 9, allowing $+ 0^s,88$ for loss of clock and $+ 0^s,59$ for change of AR is − 1″,24; and by Polaris and Polaris SP Nov. 9, allowing $+ 0^s,29$ for loss of clock and $+ 0^s,20$ for change of AR, − 0″,97. The mean of these, with the correction + 1″,26, is adopted from Nov. 5.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Nov. 7	Venus 2 L.	40,5	53,8	8,1	21,7	35,6	49,4	14 . 16 . 3,4		B.
	ϵ Bootis	56,1	11,4	26,8	42,1	57,4	12,1	14 . 38 . 27,0		B.
Nov. 8	⊙ 1 L. …… (loud wind)	43,0	56,9	11,1	25,1	39,1	53,2	14 . 52 . 7,2		B.
	⊙ 2 L.	58,3	12,4	27,0	41,1	55,1	9,0	14 . 54 . 23,0		B.
	α Coronæ Borealis	51,7	6,5	21,7	37,2	52,2	7,1	15 . 28 . 22,2		B.
	α Herculis	21,4	35,3	49,2	3,2	17,1	30,9	17 . 7 . 44,9		B.
	α Ophiuchi	31,0	44,7	58,8	12,8	26,2	40,0	17 . 27 . 53,6		B.
Nov. 9	α Aquilæ	59,3	13,1	26,6	40,2	53,9	7,1	19 . 43 . 20,9		B.
	β Aquilæ	28,1	41,7	55,3	9,0	22,7	36,1	19 . 47 . 49,2		B.
	α^2 Capricorni	10,4	24,2	38,2	52,2	5,9	19,4	20 . 9 . 33,1		B.
	(*a*) ∗ Mag. 8 or 9. N.P.D. 24°. 11′	……	……	32.52,0	33.24,7	33.56,6	34.28,9	22 . 35 . 2,5	– 32,90	B.
	Uranus	2,5	16,1	29,8	43,5	57,1	10,6	22 . 42 . 24,2		B.
	α Pegasi	48,4	2,3	16,2	30,4	44,2	58,0	22 . 57 . 12,0		B.
	(*b*) ∗ Mag. 8 or 9. N.P.D. 26°. 7′	55. 8,5	55.38,8	56. 8,9	56.40,1	57. 9,7	57.40,4	23 . 58 . 11,3		B.
	Polaris	36.48,7	45.13,8	53.34,3	1.55,7	10. 9,2	18.24,6	1 ………	+ 4 . 9,11	B.
	Regulus	50,8	4,7	18,3	32,2	46,0	59,8	10 . 0 . 13,8		B.
	☽ 2 L.	29,1	43,2	57,4	11,8	26,0	39,8	10 . 15 . 53,9		B.
	Mars 2 L. …… (hazy)	20,5	34,3	48,3	2,4	15,8	29,5	10 . 22 . 43,5		B.
	c Leonis …… (cloudy)	……	……	54,7	8,4	22,0	35,4	10 . 52 . 48,8	– 13,58	B.
	Jupiter 1 L. … (cloudy)	8,8	……	35,2	……	2,1	……	12 . 36 . 29,2	+ 0,02	B.
	Jupiter 2 L.	……	24,3	……	51,6	……	18,8	12 . 36 . ….	– 0,02	B.
	Polaris SP.	37. 4,3	45.23,6	53.39,8	1.53,8	10.16,4	18.39,7	13 . 26 . 58,5		B.
	Arcturus	19,8	34,1	48,6	3,1	17,2	31,3	14 . 8 . 45,7		B.
	Venus 2 L. …… (motion)	19,8	33,3	47,2	1,3	14,9	28,5	14 . 25 . 42,3		B.
	ϵ Bootis …… (cloudy)	55,6	10,8	……	……	56,3	11,4	14 . 38 . 26,4	– 2,99	B.
Nov. 10	α Aquarii	35,2	48,8	2,2	16,0	29,3	43,1	21 . 57 . 56,4		B.
	Uranus	0,4	14,2	27,7	41,4	54,9	8,7	22 . 42 . 22,2		B.
	α Pegasi	48,3	1,9	15,8	29,9	43,7	57,4	22 . 57 . 11,3		B.
Nov. 11	☽ 2 L.	22,4	35,9	49,3	3,0	16,4	30,0	11 . 43 . 43,7		B.
	Spica	45,0	58,4	11,9	26,2	39,8	53,2	13 . 17 . 6,8		B.
	Arcturus	18,8	33,1	47,5	2,0	15,9	30,4	14 . 8 . 44,7		B.
	Venus 2 L.	2,7	16,7	30,5	44,8	58,6	12,5	14 . 35 . 26,3		B.
	ϵ Bootis	54,4	9,5	24,7	40,0	55,1	10,1	14 . 38 . 25,1		B.
Nov. 12	⊙ 1 L.	50,5	4,8	18,9	33,2	47,2	1,2	15 . 8 . 15,3		B.
	⊙ 2 L.	7,1	21,3	35,4	49,9	4,0	18,0	15 . 10 . 31,9		B.
	α Herculis	19,7	33,2	47,0	0,9	14,8	28,9	17 . 7 . 42,7		B.
	α Aquilæ …… (cloudy)	……	……	……	39,0	52,2	6,0	19 . 43 . 19,2	– 20,42	B.
	β Aquilæ	……	……	……	7,6	21,0	34,2	19 . 47 . 47,9	– 20,30	B.
	α^2 Capricorni	8,9	22,8	36,2	50,2	4,2	17,7	20 . 9 . 31,5		B.
	(*c*) ∗ Mag. 8 or 9. N.P.D. 24°. 11′	31.43,4	……	……	33.23,3	33.55,2	34.24,8	22 . 35 . 1,6	– 19,71	B.
	Uranus	56,7	10,2	24,2	38,1	51,3	5,2	22 . 42 . 18,4		B.
	α Pegasi	47,2	0,8	14,9	28,8	42,3	56,1	22 . 57 . 10,2		B.
	Polaris	36.50,4	45. 8,7	53.31,5	1.54,3	10. 4,8	18.26,6	1 . 26 . 41,5		B.
	∗ Mag. 7 or 8. N.P.D. 36°. 54′	38,4	0,7	22,9	45,3	8,1	29,9	1 . 42 . 52,1		B.
	α Arietis	7,6	22,1	36,7	51,3	5,9	20,2	1 . 58 . 35,0		B.
	ψ Arietis	1,5	15,5	29,9	44,1	57,8	11,9	2 . 22 . 25,9		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*. The Transit levelled Nov. 17, 3^h.

(*a*) Extremely faint. Wires I and II have been omitted as not according with the rest.

(*b*) Very faint.

(*c*) Hazy and very faint.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
14.15.21,78		+0,15	21,79			0,59	13,27	14.15.35,41	Venus 2 L.
14.37.41,84			41,98	55,70	13,72			14.37.55,61	ε Bootis.
14.51.25,09			32,94					14.52.46,58	⊙'s center.
14.53.40,84									
15.27.36,95			37,10	50,68	13,58			15.27.50,75	α Coronæ Bor.
17. 7. 3,14			3,25	16,94	13,69			17. 7.16,94	α Herculis.
17.27.12,44			12,54	26,25	13,71			17.27.26,24	α Ophiuchi.
19.42.40,15			40,24	54,65	14,41	0,45	13,92	19.42.54,53	α Aquilæ.
19.47. 8,87			8,95	23,25	14,30			19.47.23,24	β Aquilæ.
20. 8.51,91			51,91	6,13	14,22			20. 9. 6,21	α^2 Capricorni.
22.33.24,04			24,37					22.33.38,71	* N.P.D. 24°. 11′.
22.42.43,40			43,42					22.42.57,77	Uranus.
22.56.30,21			30,32	44,64	14,32			22.56.44,67	α Pegasi.
23.56.39,68			40,00					23.56.54,37	* N.P.D. 26°. 7′.
1. 1.50,16	53,75		53,53	9,88	16,35		14,37	1. 2. 7,92	Polaris.
9.59.32,23			32,33	46,84	14,51	0,42	14,32	9.59.46,82	Regulus.
10.15.11,60			11,70					10.15.26,20	☽ 2 L.
10.22. 2,04			2,14					10.22.16,64	Mars 2 L.
10.52. 8,28			8,36					10.52.22,87	c Leonis.
12.35.48,85			50,24					12.36. 4,78	Jupiter's center.
12.35.51,55									
13. 1.59,44	56,19		56,42	9,68	13,26			1. 2.10,97	Polaris SP.
14. 8. 2,83			2,95	17,61	14,66			14. 8.17,52	Arcturus.
14.25. 1,04			1,04					14.25.15,61	Venus 2 L.
14.37.41,11			41,25	55,72	14,47			14.37.55,83	ε Bootis.
21.57.15,86			15,91	30,54	14,63			21.57.30,61	α Aquarii.
22.41.41,35			41,37					22.41.56,09	Uranus.
22.56.29,76			29,87	44,63	14,76			22.56.44,59	α Pegasi.
11.43. 2,96		+0,61	3,04			0,58	15,31	11.43.18,63	☽ 2 L.
13.16.25,90			25,94	41,47	15,53			13.16.41,57	Spica.
14. 8. 1,77			1,90	17,64	15,74			14. 8.17,55	Arcturus.
14.34.44,59			44,62					14.35. 0,28	Venus 2 L.
14.37.39,84			40,00	55,75	15,75			14.37.55,66	ε Bootis.
15. 7.33,01			41,34					15. 8.57,02	⊙'s center.
15. 9.49,66									
17. 7. 1,02			1,15	16,92	15,77			17. 7.16,87	α Herculis.
19.42.38,68			38,79	54,61	15,82			19.42.54,58	α Aquilæ.
19.47. 7,37			7,47	23,21	15,74			19.47.23,26	β Aquilæ.
20. 8.50,21			50,24	6,09	15,85			20. 9. 6,04	α^2 Capricorni.
22.33.21,95			22,27					22.33.38,13	* N.P.D. 24°. 11′.
22.41.37,73			37,78					22.41.53,64	Uranus.
22.56.28,62			28,75	44,60	15,85			22.56.44,61	α Pegasi.
1. 1.48,26	51,85		50,97	8,71	17,74		15,89	1. 2. 6,88	Polaris.
1.41.45,34			45,60					1.42. 1,53	* N.P.D. 36°. 54′.
1.57.51,25			51,39	7,22	15,83			1.58. 7,33	α Arietis.
2.21.43,80			43,92					2.21.59,87	ψ Arietis.

Error of Collimation = − 1″,93.

Level Error = + 4″,20. From Mars Nov. 12 = + 3″,35.

Meridian Error from Nov. 11 by Polaris, Polaris SP, and Polaris, Nov. 12 and 13, with the correction + 1″,26.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Nov. 12	(*a*) Mars 2 L.	17,6	31,5	45,3	59,5	12,9	26,4	10 . 28 . 40,5		B.
	☽ 2 L.	59,9	13,3	27,3	41,2	54,9	8,5	12 . 26 . 22,1		B.
	Jupiter 1 L. } ..... (faint)	12,9	......	40,0	......	7,1	......	12 . 38 . 33,4	+ 0,02	B.
	Jupiter 2 L. }	......	28,4	......	55,5	......	22,5	12 . 38	− 0,02	B.
	Polaris SP.	......	45.13,4	53.37,7	1.48,8	10. 9,5	18.36,6	13 . 26 . 54,3	− 4 . 9,17	B.
	Spica	44,5	58,2	11,8	25,2	38,7	52,3	13 . 17 . 6,1		B.
	Arcturus	18,3	32,5	47,0	1,7	15,9	30,1	14 . 8 . 44,2		B.
	Venus 2 L.	56,2	9,7	24,1	37,9	51,6	5,7	14 . 40 . 19,6		B.
Nov. 13	⊙ 1 L.	54,2	8,3	22,9	37,1	51,1	5,3	15 . 12 . 19,3		B.
	⊙ 2 L.	11,2	25,4	40,0	54,1	8,1	22,0	15 . 14 . 36,3		B.
	α Herculis	18,9	32,6	46,8	0,9	14,4	28,2	17 . 7 . 42,0		B.
	α Ophiuchi .. (hazy and faint)	......	......	56,1	9,8	23,8	37,1	17 . 27 . 50,8	− 13,82	B.
	α Aquilæ	57,2	10,9	24,6	38,2	51,8	5,2	19 . 43 . 18,9		B.
	β Aquilæ	26,1	39,6	53,1	6,8	20,1	33,6	19 . 47 . 47,0		B.
	α^2 Capricorni	8,3	22,1	35,9	50,0	3,4	17,3	20 . 9 . 31,0		B.
	6 Cephei	14.10,6	14.41,4	15.12,2	15.43,7	16.14,1	16.44,7	21 . 17 . 15,5		B.
	β Aquarii	7,1	20,7	34,4	48,1	1,4	14,9	21 . 23 . 28,3		B.
	Uranus	54,8	9,1	22,4	36,2	50,0	3,2	22 . 42 . 16,9		B.
	α Pegasi	46,2	0,1	14,1	28,2	42,1	55,9	22 . 57 . 9,9		B.
	Polaris	36.48,5	45. 7,2	53.31,6	1.53,7	10. 6,4	18.22,5	1 . 26 . 42,6		B.
	α Arietis	6,8	21,1	36,1	50,9	5,4	20,0	1 . 58 . 34,3		B.
	Mars 2 L. ...... (dancing)	15,5	28,8	42,6	56,7	10,5	24,3	10 . 30 . 37,7		B.
	Spica	43,6	57,4	11,1	24,7	38,2	52,0	13 . 17 . 5,5		B.
	Arcturus	17,9	32,1	46,4	1,0	15,3	29,1	14 . 8 . 43,7		B.
	ε Bootis	53,3	8,5	23,9	39,1	54,1	9,0	14 . 38 . 24,3		B.
	Venus 2 L.	50,6	4,7	18,8	32,5	46,4	0,3	14 . 45 . 14,4		B.
Nov. 14	⊙ 1 L. } .... (waving)	59,4	13,8	28,1	42,5	56,3	10,5	15 . 16 . 24,8		B.
	⊙ 2 L. }	16,8	30,8	45,0	59,3	13,2	27,4	15 . 18 . 41,9		B.
	α Coronæ Borealis	48,7	3,5	18,8	34,1	48,8	4,1	15 . 28 . 19,1		B.
	(*b*) Mercury 2 L.	......	......	32,9	46,8	1,3	15,5	15 . 40 . 29,6	− 14,45	B.
	α Ophiuchi	28,0	41,7	55,6	9,3	23,0	36,8	17 . 27 . 50,7		B.
	∗ Mag. 8 or 9. N.P.D. 25°. 1′ .... (hazy)	......	......	1.49,3	2.21,1	2.53,2	3.24,5	21 . 3 . 56,2	− 31,87	B.
	β Aquarii	6,9	20,3	34,1	47,5	1,2	14,5	21 . 23 . 28,1		B.
Nov. 22	(*c*) ☽ 1 L.	33,8	48,8	4,1	19,5	34,6	49,7	20 . 26	+ 7,59	G.
	β Aquarii	2,5	15,9	29,8	43,2	56,6	10,1	21 . 23 . 23,5		G.
	(*d*) Uranus	......	......	17,4	31,1	44,3	58,1	22 . 41	− 6,87	G.
	α Pegasi	41,7	55,3	9,3	23,3	37,1	50,9	22 . 57 . 5,0		G.
	α Arietis	2,3	16,8	31,3	46,1	0,6	15,0	1 . 58 . 29,4		G.
Nov. 24	α Aquilæ	51,1	4,7	18,7	32,2	45,9	59,2	19 . 43 . 12,7		B.
	β Aquilæ	20,0	33,7	47,1	0,8	14,1	27,7	19 . 47 . 41,1		B.
	α^2 Capricorni	2,1	15,8	29,9	43,7	57,2	......	20 . 8	+ 13,79	B.
	∗ Mag. 8 or 9. N.P.D. 25°. 1′ ..... (very faint)	......	1.11,1	1.42,9	2.15,1	2.46,7	3.17,9	21 . 3 . 49,3	− 15,93	B.
	6 Cephei	14. 4,2	14.34,8	15. 6,0	15.37,2	16. 7,6	16.38,3	21 . 17 . 9,2		B.
	β Aquarii	1,3	14,7	28,2	41,9	55,2	8,8	21 . 23 . 22,2		B.
	δ Capricorni	3,7	17,8	32,2	46,2	0,1	14,1	21 . 38 . 28,0		B.
	ι Aquarii	39,6	53,5	7,4	21,5	35,2	49,1	21 . 58 . 3,1		B.
	☽ 1 L. .... (unsteady)	57,8	11,9	26,2	40,9	55,1	9,5	22 . 18 . 22,9		B.
	∗ Mag. 8½. N.P.D. 24°. 11′ ...... (faint)	......	32. 9,3	32.43,2	33.15,7	33.49,6	34.21,3	22 . 34 . 53,7	− 16,44	B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*.
The Transit levelled Nov. 26, 2^h.

(*a*) Very badly defined.
(*b*) Very ill-defined. Second limb taken by mistake.
(*c*) Two last wires very cloudy.
(*d*) Hurried.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	
10.27.59,10		+ 0,61	59,17			0,55	15,94	10.28.15,35	Mars 2 L.
12.25.41,02			41,04					12.25.57,26	☽ 2 L.
12.37.53,37			54,44					12.38.10,67	Jupiter's center.
12.37.55,45									
13. 1.54,21	52,58		53,53	8,52	14,99			1. 2. 9,77	Polaris SP.
13.16.25,26			25,28	41,49	16,21			13.16.41,52	Spica.
14. 8. 1,38			1,46	17,66	16,20			14. 8.17,72	Arcturus.
14.39.37,83			37,83					14.39.54,11	Venus 2 L.
15.11.36,89			45,36					15.13. 1,65	☉'s center.
15.13.53,87									
17. 7. 0,54			0,62	16,92	16,30			17. 7.16,95	α Herculis.
17.27. 9,70			9,78	26,23	16,45			17.27.26,12	α Ophiuchi.
19.42.38,12			38,18	54,60	16,42			19.42.54,57	α Aquilæ.
19.47. 6,62			6,68	23,20	16,52			19.47.23,07	β Aquilæ.
20. 8.49,71			49,72	6,08	16,36			20. 9. 6,12	α^2 Capricorni.
21.15.43,17			43,35					21.15.59,78	6 Cephei.
21.22.47,85			47,88	4,34	16,46			21.23. 4,31	β Aquarii.
22.41.36,09			36,11					22.41.52,57	Uranus.
22.56.28,07			28,15	44,59	16,44			22.56.44,62	α Pegasi.
1. 1.47,50	49,40		48,52	8,34	19,82		16,49	1. 2. 5,03	Polaris.
1.57.50,65			50,74	7,22	16,48			1.58. 7,27	α Arietis.
10.29.56,59			56,66			0,48	16,48	10.30.13,35	Mars 2 L.
13.16.24,64			24,66	41,51	16,85			13.16.41,41	Spica.
14. 8. 0,78			0,86	17,67	16,81			14. 8.17,62	Arcturus.
14.37.38,89			38,99	55,77	16,78			14.37.55,76	ε Bootis.
14.44.32,53			32,53					14.44.49,30	Venus 2 L.
15.15.42,20			50,68					15.17. 7,46	☉'s center,
15.17.59,20									
15.27.33,87			33,98	50,71	16,73			15.27.50,77	α Coronæ Bor.
15.39.46,77			46,74					15.40. 3,53	Mercury 2 L.
17.27. 9,30			9,38	26,22	16,84			17.27.26,21	α Ophiuchi.
21. 2.20,99			21,19					21. 2.38,09	⁎ N.P.D. 25°.1′.
21.22.47,52			47,55	4,33	16,78			21.23. 4,46	β Aquarii.
20.26.19,34		+ 0,67	19,31			0,62	20,55	20.26.40,39	☽ 1 L.
21.22.43,08			43,11	4,23	21,12			21.23. 4,21	β Aquarii.
22.41.30,85			30,88					22.41.52,02	Uranus.
22.56.23,23			23,32	44,49	21,17			22.56.44,46	α Pegasi.
1.57.45,93			46,03	7,23	21,20		21,17	1.58. 7,25	α Arietis.
19.42.32,07			32,14	54,49	22,35	0,60	21,82	19.42.54,45	α Aquilæ.
19.47. 0,64			0,71	23,09	22,38			19.47.23,02	β Aquilæ.
20. 8.43,53			43,54	5,97	22,43			20. 9. 5,86	α^2 Capricorni.
21. 2.14,57			14,80					21. 2.37,15	⁎ N.P.D. 25°.1′.
21.15.36,76			36,98					21.15.59,33	6 Cephei.
21.22.41,75			41,78	4,21	22,43			21.23. 4,13	β Aquarii.
21.37.46,02			46,01					21.38. 8,37	δ Capricorni.
21.57.21,34			21,35					21.57.43,72	ι Aquarii.
22.17.40,61			40,62					22.18. 3,00	☽ 1 L.
22.33.15,69			15,90					22.33.38,28	⁎ N.P.D. 24°.11′.

Error of Collimation = – 1″,93.

Level Error = + 3″,35. From Nov. 22 = + 3″,57.

The Meridian Error by α Pegasi, Polaris, and α Arietis Nov. 26, = – 0″,80, and by the same stars Dec. 4 = – 0″,04. The value adopted from Nov. 22, is the determination derived from consecutive transits of Polaris Dec. 3 and 4, diminished by + 0″,76 the difference of the above.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	*m. s.*	*m. s.*	*m. s.*	*m. s.*	*m. s.*	*h. m. s.*	*m. s.*	
Nov. 24	Uranus................	50,8	4,4	18,1	31,8	45,2	59,0	22 . 42 . 12,3		B.
	λ Aquarii............	9,5	22,9	36,5	50,4	3,9	17,3	22 . 44 . 31,1		B.
	α Pegasi	40,3	54,2	8,3	22,1	35,9	49,7	22 . 57 . 3,6		B.
	α Andromedæ.........	56,3	11,5	26,9	42,2	57,2	12,7	0 . 0 . 28,1		B.
	* Mag. 7 or 8. N.P.D. 36° 54′........ (faint)	31,2	53,9	16,4	39,0	1,1	23,3	1 . 42 . 45,3		B.
	(*a*) α Arietis............	1,1	15,4	30,1	45,1	59,4	14,3	1 . 58 . 28,7		B.
Nov. 26	⊙ 1 L...............	2,9	17,0	31,4	46,1	0,6	14,9	16 . 6 . 29,1		B.
	⊙ 2 L...............	23,2	36,9	51,3	6,0	20,1	34,5	16 . 8 . 48,9		B.
	α Ophiuchi	......	35,1	49,0	2,7	16,8	30,2	17 . 27 . 44,0	− 6,91	B.
	* Mag. 8 or 9. N.P.D. 25° 1′............	37,4	8,9	40,8	13,3	44,8	16,5	21 . 3 . 48,4		B.
	6 Cephei............	3,8	33,3	4,7	35,9	6,3	37,1	21 . 17 . 7,9		B.
	β Aquarii............	59,9	13,3	27,1	40,7	54,2	7,4	21 . 23 . 21,1		B.
	α Aquarii............	26,2	39,8	53,2	6,7	20,2	33,5	21 . 57 . 46,9		B.
	Uranus...............	52,9	6,5	20,2	33,8	47,3	0,7	22 . 42 . 14,2		B.
	λ Aquarii............	8,4	21,8	35,2	49,2	2,9	16,1	22 . 44 . 29,9		B.
	α Pegasi..............	39,4	53,2	7,2	21,2	34,9	48,3	22 . 57 . 2,2		B.
	n Piscium............	36,0	49,4	2,9	16,8	30,1	43,3	23 . 39 . 57,1		B.
	q Piscium............	30,3	44,1	57,4	11,1	24,6	38,1	23 . 53 . 51,4		B.
	(*b*) ☽ 1 L...............	45,1	58,9	12,9	26,5	40,2	54,0	0 . 3 . 7,9		B.
	t Piscium............	5,5	18,9	32,4	46,1	59,3	12,8	0 . 17 . 26,1		B.
	A.S.C. 79............	52,7	6,2	19,9	33,5	46,9	0,4	0 . 40 . 13,9		B.
	Polaris...................	36.34,3	44.53,7	53.17,4	1.41,8	9.56,3	18.13,2	1 . 26 . 32,3		B.
	* Mag. 7 or 8. N.P.D. 36° 54′............	30,1	52,4	15,1	37,7	59,9	22,2	1 . 42 . 44,6		B.
	α Arietis............	59,8	14,2	29,1	43,6	58,2	12,5	1 . 58 . 27,1		B.
Nov. 28	α Andromedæ.........	53,9	9,2	24,4	40,2	55,1	10,2	0 . 0 . 25,3		B.
	Polaris................	36.28,4	44.50,6	53.15,5	1.38,3	9.51,7	18.10,2	1 . 26 . 29,8		B.
	(*c*) η Piscium........	46,3	0,4	......	29,2	43,2	56,3	1 . 23 . 9,9	− 2,31	B.
Nov. 29	(*d*) ⊙ 1 L................	50,4	5,0	19,5	34,2	48,8	3,2	16 . 19 . 17,3		B.
	⊙ 2 L................	11,1	25,7	40,2	54,9	9,2	23,5	16 . 21 . 38,0		B.
	ψ Arietis............	53,1	6,9	21,1	35,0	49,1	2,3	2 . 22 . 16,2		B.
	ν Arietis.............	33,1	47,2	1,8	16,1	30,5	45,1	2 . 29 . 59,1		B.
	☽ 1 L...............	34,0	48,6	3,9	18,4	33,0	47,4	2 . 50 . 2,0		B.
	ζ Arietis............	31,9	46,2	0,2	15,1	......	......	3 . 5 . 57,7	+ 8,61	B.
	η Tauri...............	46,4	1,3	16,2	31,1	45,8	0,4	3 . 38 . 14,7		B.
	Aldebaran............	......	......	3,1	16,8	31,1	44,4	4 . 26 . 58,2	− 14,03	B.
	Rigel.................	43,0	56,2	10,1	23,9	37,2	50,9	5 . 7 . 4,3		B.
	Arcturus.............	9,0	23,1	37,5	52,1	6,2	20,4	14 . 8 . 34,8		B.
	ε Bootis	44,1	59,2	14,8	30,0	45,0	0,1	14 . 38 . 15,2		B.
	α Coronæ Borealis.....	39,2	54,3	9,7	25,1	39,9	54,9	15 . 28 . 10,2		B.
Nov. 30	⊙ 1 L................	8,0	22,3	36,9	51,3	5,9	20,4	16 . 23 . 34,9		B.
	⊙ 2 L................	28,2	42,8	57,4	12,0	26,4	41,0	16 . 25 . 55,3		B.
	α Aquilæ............	47,0	0,9	14,6	28,1	41,7	55,3	19 . 43 . 8,7		B.
	β Aquilæ..... (cloudy)	......	......	43,1	57,0	10,4	23,9	19 . 47 . 37,2	− 13,55	B.
	Uranus.......... (hazy)	57,7	11,4	25,1	38,5	52,3	5,9	22 . 42 . 19,2		B.
	α Pegasi..............	36,2	50,1	4,0	18,1	31,8	45,8	22 . 56 . 59,5		B.
	(*e*) ψ Arietis............	51,1	5,3	19,4	33,9	47,9	1,8	2 . 22 . 15,4		B.
	ν Arietis..............	31,9	46,2	0,8	15,5	30,0	44,1	2 . 29 . 58,4		B.
	α Ceti................	46,0	59,6	13,4	27,1	40,2	53,2	2 . 54 . 7,1		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA.*

(*a*) Wire IV was put down 45,4 and altered at the time of observation.
(*b*) Ragged and unsteady.
(*c*) Cloudy and confused: the intervals are unsatisfactory.
(*d*) Very loud wind from this observation to that of α Pegasi Nov. 30. Clock sometimes inaudible.
(*e*) Much haze during this and following observations.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
22 . 41 . 31,65		+ 0,67	31,68			0,60	21,82	22 . 41 . 54,07	Uranus.
22 . 43 . 50,22			50,25					22 . 44 . 12,64	λ Aquarii.
22 . 56 . 22,01			22,10	44,47	22,37			22 . 56 . 44,49	α Pegasi.
23 . 59 . 42,13			42,25	4,65	22,40			0 . 0 . 4,67	α Andromedæ.
1 . 41 . 38,60			38,79				22,42	1 . 42 . 1,25	* N.P.D. 36°. 54′.
1 . 57 . 44,87			44,97	7,23	22,26			1 . 58 . 7,44	α Arietis.
16 . 5 . 46,00			55,90			0,58	23,02	16 . 7 . 19,31	⊙'s center.
16 . 8 . 5,84									
17 . 27 . 2,72			2,81	26,21	23,40			17 . 27 . 26,25	α Ophiuchi.
21 . 2 . 12,87			13,10					21 . 2 . 36,63	* N.P.D. 25°. 1′.
21 . 15 . 35,57			35,79					21 . 15 . 59,32	6 Cephei.
21 . 22 . 40,52			40,55	4,18	23,63			21 . 23 . 4,09	β Aquarii.
21 . 57 . 6,64			6,69	30,35	23,66			21 . 57 . 30,24	α Aquarii.
22 . 41 . 33,66			33,69					22 . 41 . 57,26	Uranus.
22 . 43 . 49,07			49,10					22 . 44 . 12,67	λ Aquarii.
22 . 56 . 20,91	20,97		21,00	44,44	23,44			22 . 56 . 44,57	α Pegasi.
23 . 39 . 16,52			16,56					23 . 39 . 40,15	*n* Piscium.
23 . 53 . 11,00			11,04					23 . 53 . 34,64	*q* Piscium.
0 . 2 . 26,50			26,56				23,60	0 . 2 . 50,16	☽ 1 L.
0 . 16 . 45,87			45,92					0 . 17 . 9,53	*t* Piscium.
0 . 39 . 33,36			33,42					0 . 39 . 57,04	A.S.C. 79.
1 . 1 . 35,57	37,91		36,93	2,67	25,74			1 . 2 . 0,55	Polaris.
1 . 41 . 37,43			37,62					1 . 42 . 1,26	* N.P.D. 36°. 54′.
1 . 57 . 43,50	43,58		43,60	7,23	23,63			1 . 58 . 7,25	α Arietis.
23 . 59 . 39,75			39,87	4,61	24,74	0,65	24,74	0 . 0 . 4,61	α Andromedæ.
1 . 1 . 32,07			33,43	1,69	28,26			1 . 1 . 58,20	Polaris.
1 . 22 . 28,57			28,67					1 . 22 . 53,45	η Piscium.
16 . 18 . 34,06			44,34			0,90	24,48	16 . 20 . 9,43	⊙'s center.
16 . 20 . 54,66									
2 . 21 . 34,81			34,90				25,38	2 . 22 . 0,37	ψ Arietis.
2 . 29 . 16,13			16,23					2 . 29 . 41,70	ν Arietis.
2 . 49 . 18,19			18,29					2 . 49 . 43,77	☽ 1 L.
3 . 5 . 14,83			14,93					3 . 5 . 40,43	ζ Arietis.
3 . 37 . 30,84			30,95					3 . 37 . 56,47	η Tauri.
4 . 26 . 16,69			16,79	42,31	25,52			4 . 26 . 42,33	Aldebaran.
5 . 6 . 23,66			23,69	49,28	25,59			5 . 6 . 49,26	Rigel.
14 . 7 . 51,87			51,97	17,98	26,01	1,05	25,34	14 . 8 . 17,93	Arcturus.
14 . 37 . 29,77			29,89	56,03	26,14			14 . 37 . 55,87	ε Bootis.
15 . 27 . 24,76			24,88	50,88	26,00			15 . 27 . 50,90	α Coronæ Bor.
16 . 22 . 51,38			1,61					16 . 24 . 27,67	⊙'s center.
16 . 25 . 11,87									
19 . 42 . 28,05			28,12	54,44	26,32			19 . 42 . 54,32	α Aquilæ.
19 . 46 . 56,77			56,84	23,04	26,20			19 . 47 . 23,05	β Aquilæ.
22 . 41 . 38,59			38,62					22 . 42 . 4,96	Uranus.
22 . 56 . 17,93			18,02	44,40	26,38			22 . 56 . 44,36	α Pegasi.
2 . 21 . 33,54			33,63				26,39	2 . 22 . 0,12	ψ Arietis.
2 . 29 . 15,27			15,37					2 . 29 . 41,87	ν Arietis.
2 . 53 . 26,66			26,72	53,11	26,39			2 . 53 . 53,24	α Ceti.

Error of Collimation = − 1″,93.

Level Error = + 3″,57.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Nov. 30	ζ Arietis	30,8	45,1	59,8	14,0	28,0	42,2	3 . 5 . 57,0		B.
	η Tauri	45,7	0,5	15,3	30,1	44,4	59,2	3 . 38 . 13,9		B.
	☽ 1 L.	3,9	18,8	34,0	49,1	4,3	19,4	3 . 52 . 34,8		B.
	υ^1 Tauri	31,9	46,4	0,9	15,8	30,0	44,3	4 . 16 . 58,9		B.
	Aldebaran	33,8	47,7	2,0	16,0	29,9	43,7	4 . 26 . 57,8		B.
	τ Tauri	26,1	40,4	55,0	9,7	24,3	38,8	4 . 32 . 53,1		B.
	Mars 2 L. (loud wind)	33,3	47,4	0,6	14,6	28,2	41,5	11 . 1 . 55,4		B.
	ε Bootis (hazy)	......	......	13,8	29,0	44,1	59,2	14 . 38 . 14,6	– 15,24	B.
Dec. 1	⊙ 1 L. (hazy and faint)	25,4	40,0	54,7	9,3	23,9	38,0	16 . 27 . 52,7		B.
	⊙ 2 L.	46,0	0,6	15,3	30,0	44,3	59,0	16 . 30 . 13,3		B.
Dec. 2	Aldebaran	......	......	0,4	14,3	28,1	42,0	4 . 26 . 56,0	– 14,03	B.
	C Tauri	59,9	14,7	30,2	45,1	0,3	15,3	5 . 43 . 30,8		B.
	α Orionis	19,3	33,1	46,3	0,4	14,0	27,3	5 . 46 . 40,8		B.
	(a) ☽ 2 L.	22,3	38,1	54,2	10,0	25,6	41,0	6 . 6 . 57,2		B.
	ω^1 Geminorum	23,8	38,9	53,7	8,5	23,1	37,7	6 . 52 . 52,3		B.
	Mars 2 L.	57,7	11,8	25,6	39,0	52,6	6,3	11 . 5 . 19,5		B.
	(b) ε Bootis	41,6	56,9	12,0	27,4	42,5	57,7	14 . 38 . 12,8		B.
	(b) α Coronæ Borealis	36,6	51,8	7,0	22,1	37,0	52,1	15 . 28 . 7,4		B.
Dec. 3	⊙ 1 L.	......	......	31,7	46,4	1,2	15,8	16 . 36 . 30,3	– 14,60	B.
	(b) ⊙ 2 L.	24,0	38,5	53,1	7,9	22,3	36,7	16 . 38 . 51,2		B.
	(b) α Ophiuchi	16,0	29,7	43,8	57,4	11,1	25,0	17 . 27 . 38,6		B.
	Uranus	3,0	16,8	30,2	44,0	57,5	......	22 . 41	+ 13,60	G.
	α Pegasi (cloudy)	......	......	......	15,7	29,3	43,1	22 . 56 . 57,1	– 20,84	G.
	α Andromedæ	......	5,1	20,3	35,8	51,0	6,0	0 . 0 . 21,2	– 7,64	G.
	α Arietis	54,5	9,1	23,9	38,4	52,9	7,4	1 . 58 . 22,0		G.
	(c) Jupiter 1 L.	28,1	......	55,1	......	22,3	......	12 . 51 . 49,1	+ 0,02	B.
	Jupiter 2 L.	......	44,3	......	11,4	......	38,0	12 . 51	– 0,02	B.
	Polaris SP.	36.38,4	44.55,7	......	1.27,5	9.50,8	18.14,4	13 . 26 . 33,2	– 1 . 23,37	B.
	Arcturus	5,7	19,8	34,2	48,8	3,1	17,2	14 . 8 . 31,3		B.
	ε Bootis	40,8	56,1	11,4	26,6	41,8	56,9	14 . 38 . 11,9		B.
	α Coronæ Borealis	35,9	51,0	6,3	21,6	36,4	51,5	15 . 28 . 6,9		B.
	(d) Venus 2 L.	7,3	21,7	35,9	50,9	5,4	19,6	16 . 27 . 33,9		B.
Dec. 4	⊙ 1 L.	22,4	37,2	51,9	6,8	20,9	35,4	16 . 40 . 49,9		B.
	⊙ 2 L.	43,5	58,2	13,0	27,7	42,0	56,8	16 . 43 . 11,1		B.
	α Herculis	5,8	19,9	33,7	47,4	1,4	15,1	17 . 7 . 28,9		B.
	α Ophiuchi (cloudy)	......	......	43,1	56,8	10,7	24,1	17 . 27 . 37,7	– 13,82	B.
	Uranus	4,9	18,7	32,1	46,0	59,6	13,1	22 . 42 . 26,7		B.
	α Pegasi	32,6	47,2	0,8	14,7	28,5	42,0	22 . 56 . 56,1		B.
	Polaris	36.23,2	......	......	1.33,6	9.44,3	18. 1,7	1 . 26 . 21,6	– 4 . 59,74	B.
	η Piscium	41,5	55,2	9,4	23,2	37,1	51,0	1 . 23 . 5,1		B.
	∗ Mag. 7 or 8. N.P.D. 36°. 54′	24,1	46,1	8,7	31,3	53,7	16,1	1 . 42 . 38,1		B.
	α Arietis	53,5	8,3	23,2	37,4	52,1	6,7	1 . 58 . 20,8		B.
Dec. 5	⊙ 1 L. (cloudy)	......	......	12,7	27,2	41,8	56,3	16 . 45 . 10,9	– 14,62	B.
	⊙ 2 L.	4,4	19,0	33,8	48,4	2,9	17,4	16 . 47 . 32,0		B.
	α Aquilæ	43,2	56,8	10,6	24,1	37,6	51,0	19 . 43 . 4,7		B.
	β Aquilæ	12,1	25,6	39,1	52,8	6,2	19,9	19 . 47	+ 6,75	B.
	Polaris	36.21,8	44.43,3	53. 4,7	1.29,3	9.42,5	17.59,8	1 . 26 . 20,4		B.
	ε Bootis	39,4	54,7	10,1	25,6	40,5	55,4	14 . 38 . 10,7		B.
	α Coronæ Borealis	34,7	49,9	4,9	20,0	34,9	50,2	15 . 28 . 5,3		B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*.
The Transit levelled Dec. 4, 3^h.

(a) Dazzling.
(b) Blustering wind during these observations.
(c) Wire III was put down 54,1 and is altered conjecturally.
(d) Very hazy and faint.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	
3. 5.13,84		+ 0,67	13,94			1,05	26,39	3. 5.40,47	ζ Arietis.
3.37.29,87			29,98					3.37.56,53	η Tauri.
3.51.49,19			49,30					3.52.15,86	☽ 1 L.
4.16.15,46			15,56					4.16.42,14	υ¹ Tauri.
4.26.15,84			15,94	42,33	26,39			4.26.42,52	Aldebaran.
4.32. 9,63			9,73					4.32.36,32	τ Tauri.
11. 1.14,43			14,50					11. 1.41,37	Mars 2 L.
14.37.28,90			29,02	56,06	27,04			14.37.56,05	ε Bootis.
16.27. 9,15			19,45					16.28.46,56	⊙'s center.
16.29.29,78									
4.26.14,13		+ 1,43	14,30	42,35	28,05	0,92	27,90	4.26.42,37	Aldebaran.
5.42.45,19			45,38					5.43.13,50	C Tauri.
5.46. 0,17			0,32	28,45	28,13			5.46.28,44	α Orionis.
6. 6. 9,77			9,96					6. 6.38,09	☽ 2 L.
6.52. 8,29			8,48					6.52.36,64	ω¹ Geminorum.
11. 4.38,93			39,08			0,90	27,97	11. 5. 7,47	Mars 2 L.
14.37.27,27			27,46	56,10	28,64			14.37.55,98	ε Bootis.
15.27.22,00			22,20	50,93	28,73			15.27.50,75	α Coronæ Bor.
16.35.46,48			57,13					16.37.25,72	⊙'s center.
16.38. 7,67									
17.26.57,37			57,53	26,24	28,71			17.27.26,15	α Ophiuchi.
22.40.43,90			43,99					22.41.12,81	Uranus.
22.56.15,46			15,62	44,36	28,74			22.56.44,45	α Pegasi.
23.59.35,59			35,78	4,55	28,77			0. 0. 4,65	α Andromedæ.
1.57.38,32			38,50	7,22	28,72		28,87	1.58. 7,44	α Arietis.
12.51. 8,67			10,05			0,76	28,87	12.51.39,33	Jupiter's center.
12.51.11,21									
13. 1.33,30	29,81		32,04	59,03	26,99			1. 2. 1,32	Polaris SP.
14. 7.48,59			48,76	18,07	29,31			14. 8.18,08	Arcturus.
14.37.26,50			26,69	56,12	29,43			14.37.56,02	ε Bootis.
15.27.21,37			21,57	50,95	29,38			15.27.50,93	α Coronæ Bor.
16.26.50,67			50,72					16.27.20,11	Venus 2 L.
16.40. 6,36			16,97					16.41.46,37	⊙'s center.
16.42.27,47									
17. 6.47,46			47,63	16,98	29,35			17. 7.17,04	α Herculis.
17.26.56,66			56,82	26,24	29,42			17.27.26,24	α Ophiuchi.
22.41.45,87			45,96					22.42.15,55	Uranus.
22.56.14,56	14,66		14,72	44,35	29,63			22.56.44,32	α Pegasi.
1. 1.25,14	28,97		26,89	58,71	31,82		29,63	1. 1.56,55	Polaris.
1.22.23,21			23,38					1.22.53,05	η Piscium.
1.41.31,15			31,42					1.42. 1,10	✱ N.P.D. 36°.54′
1.57.37,43	37,56		37,61	7,22	29,61			1.58. 7,30	α Arietis.
16.44.27,16			37,77			0,70	29,64	16.46. 7,90	⊙'s center.
16.46.48,27									
19.42.24,00			24,15	54,42	30,27			19.42.54,36	α Aquilæ.
19.46.52,70			52,84	23,01	30,17			19.47.23,06	β Aquilæ.
1. 1.23,11			24,86	58,03	33,17		30,34	1. 1.55,23	Polaris.
14.37.25,20			25,39	56,17	30,78	0,63	30,38	14.37.56,15	ε Bootis.
15.27.19,98			20,18	50,98	30,80			15.27.50,96	α Coronæ Bor.

Error of Collimation = − 1″,93.

Level Error = + 3″,57. From Dec. 2 = + 4″,33.

The Meridian Error by Polaris SP Dec. 3 and Polaris Dec. 4, allowing + 0s,45 for loss of clock and + 0s,32 for change of Æ., is − 0″,02; which, corrected by + 1″,45, (see Introduction) is adopted from Dec. 2.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Dec. 6	☉ 2 L................	25,1	40,0	54,9	9,3	24,1	38,6	16 . 51 . 53,1		B.
	α Aquilæ............	42,6	56,0	9,7	23,3	37,1	50,6	19 . 43 . 4,0		B.
	β Aquilæ............	11,4	24,8	38,4	52,0	5,8	18,9	19 . 47 . 32,3		B.
	α^2 Capricorni..... (faint)	53,4	7,2	21,3	35,0	48,7	2,8	20 . 9 . 16,5		B.
	∗ Mag. 6 or 7. N.P.D. 26°.42′...........	5,7	35,2	5,4	35,7	5,3	35,2	23 . 59 . 4,9		B.
	Polaris................	36.18,3	44.39,8	53. 2,5	1.27,7	9.41,2	17.59,3	1 . 26 . 18,6		B.
Dec. 7	Uranus.......... (hazy)	13,6	27,2	40,7	54,5	8,2	21,3	22 . 42 . 35,1		B.
	(a) α Pegasi......... (flaring)	31,4	45,2	58,7	12,2	26,5	40,1	22 . 56 . 54,0		B.
	α Andromedæ.........	47,1	2,2	17,3	32,8	48,2	3,1	0 . 0 . 18,1		B.
	Polaris................	36.18,7	44.39,5	53. 3,3	1.25,8	9.42,4	17.57,6	1 . 26 . 17,4		B.
	∗ Mag. 7 or 8. N.P.D. 36°. 54′............	22,2	44,1	6,8	29,1	52,2	13,7	1 . 42 . 36,0		B.
	α Arietis.............	51,4	6,1	20,7	35,4	50,1	4,4	1 . 58 . 19,1		B.
	υ^1 Tauri..............	26,2	41,1	55,3	10,3	24,6	39,2	4 . 16 . 53,9		B.
	Aldebaran............	29,2	42,9	57,2	11,1	24,7	38,8	4 . 26 . 52,4		B.
	τ Tauri...............	20,7	35,4	49,8	4,7	19,1	33,5	4 . 32 . 47,9		B.
	Mars 2 L............	14,5	27,9	41,6	55,5	9,3	22,9	11 . 13 . 36,4		B.
	Jupiter 1 L...........	42,4	......	10,0	......	37,0	......	12 . 54 . 3,4	+ 0,02	B.
	Jupiter 2 L...........	......	58,3	......	25,8	......	52,4	12 . 53	– 0,02	B.
	Polaris SP...........	36.32,4	44.50,7	......	1.23,3	9.48,8	18.11,2	13 . 26 . 27,8	– 1 . 23,39	B.
	Spica................	29,1	42,6	56,7	10,3	23,8	37,3	13 . 16 . 51,1		B.
	Arcturus.............	3,2	17,0	31,7	46,0	0,4	14,7	14 . 8 . 28,9		B.
	ε Bootis..............	38,4	43,6	8,9	24,0	39,2	54,3	14 . 38 . 9,6		B.
	α Coronæ Bor... (cloudy)	......	......	4,0	19,2	34,0	49,2	15 . 28 . 4,1	– 15,18	B.
Dec. 8	☉ 1 L......... (cloudy)	48,1	2,4	17,1	31,9	46,1	......	16 . 57	+ 14,60	B.
	α Ophiuchi...... (cloudy)	......	......	40,7	54,3	8,0	21,7	17 . 27 . 35,4	– 13,82	B.
	α Aquilæ............	41,2	54,9	8,7	22,1	35,9	49,1	19 . 43 . 3,0		B.
	Uranus.......... (haze)	16,1	29,7	44,1	57,3	11,1	24,3	22 . 42 . 38,1		B.
	α Pegasi.............	......	......	58,8	12,3	26,0	39,7	22 . 56 . 53,4	– 13,91	B.
	α Andromedæ.........	46,1	1,7	17,1	32,2	47,2	2,5	0 . 0 . 17,8		B.
	Polaris................	36.16,8	44.36,5	52.59,7	1.24,4	9.40,3	17.57,3	1 . 26 . 17,5		B.
	∗ Mag. 7 or 8. N.P.D. 36°.54′............	20,9	43,8	6,1	28,7	50,0	13,2	1 . 42 . 35,5		B.
	α Arietis.............	50,9	5,7	20,4	35,0	49,1	4,0	1 . 58 . 18,2		B.
Dec. 9	☽ 2 L................	44,4	58,0	12,0	25,3	38,9	52,3	12 . 9 . 6,1		B.
	γ^1 Virginis...........	16,2	29,3	43,1	56,6	10,2	23,2	12 . 33 . 36,9		B.
	ψ Virginis............	44,1	57,7	11,6	25,2	38,9	52,2	12 . 46 . 6,1		B.
	Jupiter 1 L. ... (misty)	46,4	......	13,9	......	41,4	......	12 . 55 . 8,7	+ 0,02	B.
	Jupiter 2 L.	......	2,6	......	30,1	......	57,3	12 . 54	– 0,02	B.
	Polaris SP...........	36.24,7	......	53. 1,6	1.16,8	9.41,7	18. 4,5	13 . 26 . 26,4	– 2 . 46,30	B.
	(b) Spica................	28,1	41,9	55,5	9,4	22,9	36,4	13 . 16 . 49,9		B.
	ε Bootis..............	37,2	52,4	8,0	23,3	38,4	53,4	14 . 38 . 8,4		B.
	α Coronæ Borealis.....	32,1	47,2	2,6	17,9	32,8	47,8	15 . 28 . 3,1		B.
Dec. 10	☉ 1 L. .... (hazy)	33,4	47,9	3,1	17,7	32,1	46,8	17 . 7 . 1,3		B.
	☉ 2 L.	55,3	10,1	24,9	39,8	54,1	8,8	17 . 9 . 23,2		B.
	α Ophiuchi...........	11,5	25,1	39,1	52,8	6,9	20,5	17 . 27 . 34,1		B.
	α Pegasi..............	29,1	43,1	56,9	11,1	24,8	38,6	22 . 56 . 52,4		B.
	α Andromedæ.........	45,1	0,7	16,0	31,1	46,0	1,6	0 . 0 . 16,8		B.
	(c) Polaris................	36.13,8	44.34,5	52.57,8	1.22,3	9.38,5	17.55,2	1.........	+ 4 . 9,51	B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*.
The Transit levelled Dec. 12, 3^h.

(a) Wires I and II have each been diminished 20^s. Wire IV not satisfactory.

(b) Wires I and II have each been increased 1^s.

(c) Wires IV, V, VI, very cloudy.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0^h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
16 . 51 . 9,30		+ 1,45	9,34			0,63	30,38	16 . 51 . 40,16	⊙ 2 L.
19 . 42 . 23,33			23,48	54,41	30,93			19 . 42 . 54,38	α Aquilæ.
19 . 46 . 51,94			52,08	23,01	30,93			19 . 47 . 22,98	β Aquilæ.
20 . 8 . 34,99			35,07	5,88	30,81			20 . 9 . 5,98	α^2 Capricorni.
23 . 57 . 35,34			35,64					23 . 58 . 6,65	⁎ N.P.D. 26°. 42′.
1 . 1 . 21,06			22,81	57,34	34,53		31,01	1 . 1 . 53,85	Polaris.
22 . 41 . 54,37		+ 1,17	54,45			0,60	30,95	22 . 42 . 25,97	Uranus.
22 . 56 . 12,58			12,73	44,32	31,59			22 . 56 . 44,25	α Pegasi.
23 . 59 . 32,68			32,87	4,51	31,64			0 . 0 . 4,42	α Andromedæ.
1 . 1 . 20,67	24,50		22,80	56,63	33,83		31,55	1 . 1 . 54,38	Polaris.
1 . 41 . 29,16			29,43					1 . 42 . 1,02	⁎ N.P.D. 36°. 54′.
1 . 57 . 35,32			35,49	7,21	31,72			1 . 58 . 7,09	α Arietis.
4 . 16 . 10,08			10,25					4 . 16 . 41,91	υ^1 Tauri.
4 . 26 . 10,90			11,06	42,41	31,35			4 . 26 . 42,72	Aldebaran.
4 . 32 . 4,44			4,61					4 . 32 . 36,27	τ Tauri.
11 . 12 . 55,44			55,58			0,63	31,56	11 . 13 . 27,43	Mars 2 L.
12 . 53 . 23,22			24,45					12 . 53 . 56,35	Jupiter's center.
12 . 53 . 25,48									
13 . 1 . 28,98	25,49		27,32	56,28	28,96			1 . 1 . 59,22	Polaris SP.
13 . 15 . 10,12			10,20	42,14	31,94			13 . 15 . 42,11	Spica.
14 . 7 . 45,99			46,15	18,17	32,02			14 . 8 . 18,08	Arcturus.
14 . 37 . 24,00			24,19	56,21	32,02			14 . 37 . 56,13	ε Bootis.
15 . 27 . 18,92			19,11	51,01	31,90			15 . 27 . 51,07	α Coronæ Bor.
16 . 57 . 31,72			31,74					16 . 58 . 3,74	⊙ 1 L.
17 . 26 . 54,20			54,35	26,27	31,92			17 . 27 . 26,37	α Ophiuchi.
19 . 42 . 22,13			22,26	54,41	32,15			19 . 42 . 54,34	α Aquilæ.
22 . 41 . 57,24			57,32					22 . 42 . 29,48	Uranus.
22 . 56 . 12,13			12,28	44,31	32,03			22 . 56 . 44,44	α Pegasi.
23 . 59 . 32,08			32,27	4,50	32,23			0 . 0 . 4,46	α Andromedæ.
1 . 1 . 18,93	22,76		21,06	55,93	34,87		32,19	1 . 1 . 53,28	Polaris.
1 . 41 . 28,32			28,59					1 . 42 . 0,82	⁎ N.P.D. 36°. 54′.
1 . 57 . 34,76			34,93	7,20	32,27			1 . 58 . 7,17	α Arietis.
12 . 8 . 25,29			25,38			0,58	32,76	12 . 8 . 58,43	☽ 2 L.
12 . 32 . 56,50			56,59					12 . 33 . 29,65	γ^1 Virginis.
12 . 45 . 25,11			25,18					12 . 45 . 58,25	ψ Virginis.
12 . 54 . 27,62			28,88					12 . 55 . 1,95	Jupiter's center.
12 . 54 . 29,98									
13 . 1 . 22,98	20,13		21,96	54,92	32,96			1 . 1 . 55,03	Polaris SP.
13 . 16 . 9,16			9,23	42,20	32,97			13 . 16 . 42,31	Spica.
14 . 37 . 23,01			23,18	56,26	33,08			14 . 37 . 56,29	ε Bootis.
15 . 27 . 17,65			17,82	51,05	33,23			15 . 27 . 50,95	α Coronæ Bor.
17 . 6 . 17,47			28,48					17 . 8 . 1,65	⊙'s center.
17 . 8 . 39,46									
17 . 26 . 52,86			52,99	26,29	33,30			17 . 27 . 26,17	α Ophiuchi.
22 . 56 . 10,85			10,99	44,29	33,30			22 . 56 . 44,30	α Pegasi.
23 . 59 . 31,04			31,21	4,47	33,26			0 . 0 . 4,55	α Andromedæ.
1 . 1 . 16,53	19,70		18,00	54,60	36,60		33,34	1 . 1 . 51,36	Polaris.

Error of Collimation = − 1″,93.
Level Error = + 4″,33. From Dec. 9 = + 3″,99.
Meridian Error by Polaris, Polaris SP, and Polaris Dec. 7 and 8 = − 0″,62: by Polaris SP Dec. 9 and Polaris Dec. 10 = + 0″,06, allowing + 0^s,29 for loss of clock and + 0^s,32 for change of Æ. The mean of these, corrected by + 1″,45, is used from Dec. 7.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Dec. 11	α Pegasi..............	28,8	42,4	56,1	10,2	23,9	38,1	22 . 56 . 51,8		B.
	∗ Mag. 8 or 9. N.P.D. 25°. 26′..... (very faint)	......	......	32,1	4,4	35,2	6,8	23 . 54 . 37,9	– 31,39	B.
	(*a*) ∗ Mag. 9 or 10. N.P.D. 33°. 38′............	58,6	22,8	47,0	12,0	35,8	0,5	1 . 22 . 24,6		G.
	α Arietis............	49,2	4,1	18,8	33,4	47,7	2,2	1 . 58 . 16,7		B.
Dec. 13	(*b*) Jupiter 1 L...........	52,1	......	19,0	......	46,0	......	12 . 57 . 12,6	+ 0,02	B.
	Jupiter 2 L...........	......	7,9	......	35,0	......	1,7	12 . 57	– 0,02	B.
Dec. 14	α Aquilæ............	37,7	51,3	5,0	18,8	32,2	46,0	19 . 42 . 59,2		B.
	(*c*) Jupiter 1 L...........	22,9	......	49,7	......	16,7	......	12 . 57 . 43,8	+ 0,02	B.
	Jupiter 2 L...........	......	38,1	......	5,0	......	31,8	12 . 57	– 0,02	B.
	α Coronæ Borealis.....	29,7	44,7	59,8	15,0	30,0	45,0	15 . 28 . 0,1		B.
	α Herculis....... (faint)	......	......	27,3	41,0	55,1	8,8	17 . 7 . 22,3	– 13,92	B.
Dec. 15	⊙ 1 L................	35,0	49,8	4,9	19,5	34,0	48,6	17 . 29 . 3,1		B.
	⊙ 2 L................	57,7	12,4	27,2	41,9	56,4	11,3	17 . 31 . 25,9		B.
	α Aquilæ............	37,2	50,9	4,7	18,0	31,5	45,0	19 . 42 . 58,7		B.
	α Aquarii............	13,6	26,9	40,3	54,0	7,1	20,7	21 . 57 . 34,1		B.
	∗ Mag. 7 or 8. N.P.D. 24°. 19′.............	7,0	39,4	12,7	45,2	17,7	50,3	22 . 36 . 22,8		B.
	α Pegasi.............	26,1	39,8	53,8	7,8	21,7	35,4	22 . 56 . 49,1		B.
Dec. 18	⊙ 1 L................	51,7	6,8	21,4	36,3	50,7	5,4	17 . 42 . 20,1		B.
	⊙ 2 L................	14,9	29,0	44,0	58,8	13,2	28,0	17 . 44 . 42,7		B.
	α Aquilæ............	35,8	49,2	3,0	16,8	30,3	43,9	19 . 42 . 57,4		B.
	α Pegasi.............	24,6	38,3	52,3	6,4	20,2	34,1	22 . 56 . 47,8		B.
	(*d*) α Andromedæ.........	40,7	56,1	11,2	26,6	41,4	57,0	0 . 0 . 12,2		B.
	Polaris..............	36. 3,7	44.23,5	52.47,7	1.13,3	9.27,2	17.43,8	1 . 26 . 3,4		B.
Dec. 19	Jupiter 1 L...........	45,5	......	13,0	......	40,0	......	13 . 0 . 7,0	+ 0,02	B.
	Jupiter 2 L...........	......	1,8	......	28,9	......	55,7	12 . 59	– 0,02	B.
	Polaris SP...........	36.16,7	44.36,4	52.53,6	1. 8,8	9.34,2	17.54,8	13 . 26 . 16,3		B.
	Spica................	23,3	37,0	50,4	4,1	17,7	31,1	13 . 16 . 45,1		B.
Dec. 20	α Orionis............	9,6	23,1	36,7	50,6	3,8	17,3	5 . 46 . 30,8		C.
	(*d*) Vesta..............	......	......	50,8	5,2	19,5	34,0	6 . 41 . 48,3	– 14,48	C.
	Procyon.............	34,4	47,7	1,3	15,0	28,4	42,0	7 . 30 . 55,0		C.
	Pollux...............	4,3	19,5	35,0	50,5	5,3	20,7	7 . 35 . 35,8		C.
Dec. 25	ε Piscium....... (snowing)	14,4	28,0	41,4	55,2	8,6	22,0	0 . 54 . 35,6		C.
	μ Piscium............	24,5	38,0	51,5	5,1	18,6	32,0	1 . 21 . 45,4		C.
	☽ 1 L................	51,4	5,5	19,6	33,7	47,6	1,7	1 . 30 . 15,6		C.
	γ^1 Arietis............	19,6	33,4	48,0	2,0	16,4	30,4	1 . 44 . 44,6		C.
	α Arietis............	42,5	57,0	11,7	26,5	40,9	55,5	1 . 58 . 10,0		C.
	θ^1 Arietis............	48,0	2,2	16,5	31,0	44,8	59,0	2 . 9 . 13,3		C.
	α Ceti...............	31,8	45,2	58,5	12,4	25,7	39,3	2 . 53 . 52,6		C.
	Aldebaran............	19,6	33,5	47,6	1,8	15,6	29,7	4 . 26 . 43,8		C.
	(*e*) β Tauri..............	......	57,3	12,6	28,0	43,0	58,2	5 . 16 . 13,3	– 7,66	C.
	α Orionis............	7,3	20,7	34,6	48,0	1,5	15,0	5 . 46 . 28,4		C.
Dec. 26	Polaris SP...........	36. 7,7	44.26,4	52.45,3	0.58,8	9.23,2	17.46,6	13 . 26 . 9,3		B.
	Jupiter 1 L. (hazy and faint)	45,8	......	13,1	......	40,1	......	13 . 3 . 6,6	+ 0,02	B.
	Jupiter 2 L. (hazy and faint)	......	2,3	......	29,4	......	56,2	13 . 2	– 0,02	B.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA*.
The Transit levelled Dec. 18, 3^h, and Dec. 27, 2^h.

(*a*) Extremely faint and doubtful.
(*b*) This observation has been reduced 1^s.
(*c*) Confused observation: gives too small a diameter.
(*d*) Lamp light bad.
(*e*) Hurried: altered 15^s. Seconds probably not taken from clock.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0ʰ.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	″	s.	s.	s.	s.	s.	h. m. s.	
22 . 56 . 10,18		+ 1,17	10,31	44,28	33,97	0,59	33,33	22 . 56 . 44,20	α Pegasi.
23 . 53 . 3,89			4,15					23 . 53 . 38,07	∗ N.P.D. 25°. 26′.
1 . 21 . 11,61			11,85				33,92	1 . 21 . 45,80	∗ N.P.D. 33°. 38′.
1 . 57 . 33,15			33,30	7,19	33,89			1 . 58 . 7,27	α Arietis.
12 . 56 . 32,44			33,73			0,56	35,22	12 . 57 . 9,25	Jupiter's center.
12 . 56 . 34,85									
19 . 42 . 18,60			18,72	54,40	35,68			19 . 42 . 54,40	α Aquilæ.
12 . 57 . 3,29			4,20			0,53	35,77	12 . 57 . 40,26	Jupiter's center.
12 . 57 . 4,95									
15 . 27 . 14,90			15,07	51,16	36,09			15 . 27 . 51,18	α Coronæ Bor.
17 . 6 . 40,98			41,12	17,08	35,96			17 . 7 . 17,27	α Herculis.
17 . 28 . 19,27			30,56					17 . 30 . 6,72	☉'s center.
17 . 30 . 41,83									
19 . 42 . 18,00			18,12	54,39	36,27			19 . 42 . 54,33	α Aquilæ.
21 . 56 . 53,81			53,90	30,16	36,26			21 . 57 . 30,15	α Aquarii.
22 . 34 . 45,01			45,29					22 . 35 . 21,56	∗ N.P.D. 24°. 19′.
22 . 56 . 7,67			7,81	44,23	36,42			22 . 56 . 44,09	α Pegasi.
17 . 41 . 36,06		+ 1,40	47,48			0,41	37,25	17 . 43 . 25,03	☉'s center.
17 . 43 . 58,66									
19 . 42 . 16,63			16,86	54,39	37,53			19 . 42 . 54,45	α Aquilæ.
22 . 56 . 6,24			6,48	44,20	37,72			22 . 56 . 44,12	α Pegasi.
23 . 59 . 26,46			26,73	4,37	37,64			0 . 0 . 4,39	α Andromedæ.
1 . 1 . 6,09	12,54		10,50	49,68	39,18		37,66	1 . 1 . 48,18	Polaris.
12 . 59 . 26,39			27,77			0,34	37,88	13 . 0 . 5,83	Jupiter's center.
12 . 59 . 28,78									
13 . 1 . 14,40	8,28		10,46	48,51	38,05			1 . 1 . 48,52	Polaris SP.
13 . 16 . 4,10			4,27	42,53	38,26			13 . 16 . 42,34	Spica.
5 . 45 . 50,27			50,49	28,72	38,23		38,22	5 . 46 . 28,79	α Orionis.
6 . 41 . 5,08			5,33					6 . 41 . 43,64	Vesta.
7 . 30 . 14,83			15,04	53,37	38,33			7 . 30 . 53,37	Procyon.
7 . 34 . 50,15			50,43	28,66	38,23			7 . 35 . 28,76	Pollux.
0 . 53 . 55,03		+ 1,43	55,24			0,72	40,49	0 . 54 . 35,76	ε Piscium.
1 . 21 . 5,01			5,21					1 . 21 . 45,74	μ Piscium.
1 . 29 . 33,58			33,80					1 . 30 . 14,33	☽ 1 L.
1 . 44 . 2,05			2,29					1 . 44 . 42,83	γ^1 Arietis.
1 . 57 . 26,30			26,55	7,10	40,55			1 . 58 . 7,10	α Arietis.
2 . 8 . 30,68			30,92					2 . 9 . 11,47	θ^1 Arietis.
2 . 53 . 12,21			12,41	53,08	40,67			2 . 53 . 52,99	α Ceti.
4 . 26 . 1,65			1,89	42,52	40,63			4 . 26 . 42,51	Aldebaran.
5 . 15 . 27,74			28,01	8,55	40,54			5 . 16 . 8,66	β Tauri.
5 . 45 . 47,93			48,14	28,78	40,64			5 . 46 . 28,80	α Orionis.
13 . 1 . 5,33	59,42		1,62	43,25	41,63	0,80	41,13	1 . 1 . 43,18	Polaris SP.
13 . 2 . 26,42			28,02					13 . 3 . 9,58	Jupiter's center.
13 . 2 . 29,28									

Error of Collimation = – 1″,93. From Dec. 18 = – 0″,68, by the reversion of the Transit on Jan. 2. (1839).
Level Error = + 3″,99. From Dec. 18 = + 4″,09. From Dec. 25 = + 3″,98.
Meridian Error from Dec. 18 by Polaris Dec. 18 and Polaris SP Dec. 19 (allowing + 0^{s},53 for loss of clock and + 1^{s},17 for change of Æ,) with a correction + 0″,55. (See Introduction).
The two sets of three consecutive transits of Polaris Dec. 26—28 give for Meridian Error + 0″,77 and + 0″,99, the mean of which corrected by + 0″,55 is used from Dec. 25.

Month and Day.	NAME OF STAR or PLANET, and Circumstances of Observation.	I.	II.	III.	IV.	V.	VI.	VII. Wire.	Correction to Mean of Wires Observed.	Observer.
		m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	
Dec. 26	Spica	19,9	33,5	47,2	1,3	14,7	28,4	13 . 16 . 42,2		B.
	α Ophiuchi	3,4	16,9	30,8	45,0	58,4	12,1	17 . 27 . 25,9		B.
Dec. 27	☉ 1 L.	46,7	1,7	16,6	31,3	45,6	0,4	18 . 22 . 15,0		B.
	☉ 2 L.	9,6	24,2	39,0	54,0	8,4	23,0	18 . 24 . 37,5		B.
	α Aquilæ	31,6	45,1	58,9	12,7	26,1	39,5	19 . 42 . 53,0		B.
	(a) Uranus	52,1	6,1	19,6	33,2	47,0	0,3	22 . 44 . 14,0		B.
	α Pegasi	20,2	34,1	48,1	2,1	15,7	29,7	22 . 56 . 43,4		B.
	Polaris	35.52,6	44.10,3	52.36,6	1. 1,8	9.14,7	17.33,4	1 . 25 . 54,2		B.
	(b) ε Arietis (cloudy)	... ...	... ...	5,3	19,6	33,9	48,1	2 . 50 . 2,2	– 14,41	B.
	α Ceti	30,1	44,0	57,2	11,1	24,2	37,9	2 . 53 . 51,4		B.
	δ Arietis	1,9	15,7	30,3	44,6	59,1	13,1	3 . 2 . 27,2		B.
	☽ 1 L. (ragged)	28,2	43,2	58,3	13,5	28,3	43,2	3 . 24 . 58,2		B.
	η Tauri	30,1	44,7	59,5	14,2	28,9	43,4	3 . 37 . 58,1		B.
	A^1 Tauri	46,6	1,1	15,5	30,1	44,2	58,8	3 . 55 . 13,1		B.
	Aldebaran	18,2	32,2	46,2	0,5	14,2	28,2	4 . 26 . 42,3		B.
	Vesta	36,4	51,1	5,7	20,1	34,5	49,1	6 . 34 . 3,4		B.
	Polaris SP	36. 4,7	44.24,8	52.45,3	0.57,7	9.22,5	17.44,8	13 . 26 . 7,6		B.
	Spica	19,5	33,2	46,6	0,4	14,2	27,7	13 . 16 . 41,3		B.
	α Ophiuchi	2,3	16,1	30,0	43,9	57,5	11,1	17 . 27 . 24,9		B.
Dec. 28	☉ 1 L.	12,1	26,8	41,8	56,4	10,9	25,4	18 . 26 . 40,2		B.
	☉ 2 L.	34,9	49,2	4,0	19,0	33,4	48,0	18 . 29 . 3,0		B.
	(c) Venus 1 L.	52,4	7,2	21,9	37,0	51,5	6,4	18 . 38 . 20,7		B.
	α Aquilæ	30,7	44,1	57,9	11,9	25,4	38,8	19 . 42 . 52,4		B.
	Polaris	35.51,3	44.11,5	52.37,2	1. 2,3	9.16,2	17.31,8	1 . 25 . 52,6		B.
	α Ceti	29,4	43,1	56,4	10,2	23,3	36,8	2 . 53 . 50,2		B.
	η Tauri	29,1	43,7	58,6	13,4	28,0	42,2	3 . 37 . 57,1		B.
	A^1 Tauri	45,7	0,2	14,4	29,1	43,1	57,9	3 . 55 . 12,1		B.
	☽ 1 L. (ragged)	14,9	30,3	46,0	1,7	16,9	32,2	4 . 27 . 47,7		B.
	ι Tauri (unsteady)	3,2	17,8	32,4	47,0	1,1	15,4	4 . 53 . 30,1		B.
	Rigel	25,8	39,2	53,0	6,6	20,1	33,5	5 . 6 . 47,1		B.
	β Tauri	39,1	54,4	10,1	25,3	40,6	56,0	5 . 16 . 11,2		B.
	Vesta (misty)	28,1	42,6	57,1	11,7	26,1	40,7	6 . 32 . 55,1		B.
Dec. 31	☉ 1 L. } (hazy and faint)	26,8	41,2	56,0	11,0	25,4	40,2	18 . 39 . 54,9		B.
	☉ 2 L. }	49,1	4,1	19,0	33,4	48,0	2,4	18 . 42 . 17,1		B.
	α Aquilæ	28,0	41,6	55,1	9,0	22,3	35,9	19 . 42 . 49,4		B.
	Aldebaran	15,0	28,8	43,0	57,1	11,1	24,8	4 . 26 . 38,7		C.
	β Tauri	37,0	52,1	7,7	23,1	38,3	53,5	5 . 16 . 8,5		C.
	δ Geminorum	2,5	16,9	31,5	46,2	0,6	15,0	7 . 10 . 29,5		C.
	Castor (cloudy)	47,3	3,2	19,4	35,2	51,0	6,5	7 . 24 . 22,6		C.
	(d) Procyon	27,3	41,0	54,6	8,1	21,5	35,0	7 . 30 . 48,2		C.

ILLUMINATED END OF AXIS WEST. Order of Wires for Stars above the Pole, *GFEDCBA.*

(*a*) Too much day-light.
(*b*) The observation has been altered 8^{s}.
(*c*) Very faint and unsteady.
(*d*) Very hazy, hardly visible.

Concluded Transit over the Mean of the seven Wires.	Seconds of Transit corr. for Errors of Level and Collimation.	Meridian Error.	Seconds of Transit corrected.	Tabular R.A. of Known Stars.	Clock apparently Slow.	Adopted losing Rate.	Clock Slow at 0h.	Apparent R.A. from the Observation.	NAME OF STAR or PLANET.
h. m. s.	s.	"	s.	s.	s.	s.	s.	h. m. s.	
13 . 16 . 1,02		+ 1,43	1,18	42,77	41,59	0,80	41,13	13 . 16 . 42,75	Spica.
17 . 26 . 44,64			44,86	26,50	41,64			17 . 27 . 26,57	α Ophiuchi.
18 . 21 . 31,04			} 42,48					18 . 23 . 24,22	⊙'s center.
18 . 23 . 53,67									
19 . 42 . 12,41			12,63	54,41	41,78			19 . 42 . 54,42	α Aquilæ.
22 . 43 . 33,18			33,34					22 . 44 . 15,23	Uranus.
22 . 56 . 1,90			2,13	44,11	41,98			22 . 56 . 44,02	α Pegasi.
1 . 0 . 54,80	1,03		58,98	42,92	43,94		41,93	1 . 1 . 40,94	Polaris.
2 . 49 . 19,41			19,65					2 . 50 . 1,67	ε Arietis.
2 . 53 . 10,84			11,04	53,07	42,03			2 . 53 . 53,07	α Ceti.
3 . 1 . 44,56			44,80					3 . 2 . 26,83	δ Arietis.
3 . 24 . 13,27			13,52					3 . 24 . 55,56	☽ 1 L.
3 . 37 . 14,13			14,39					3 . 37 . 56,44	η Tauri.
3 . 54 . 29,91			30,16					3 . 55 . 12,22	A¹ Tauri.
4 . 26 . 0,25			0,48	42,53	42,05			4 . 26 . 42,56	Aldebaran.
6 . 33 . 20,04			20,29					6 . 34 . 2,44	Vesta.
13 . 1 . 3,91	58,00		0,20	42,60	42,40	0,84	41,94	1 . 1 . 42,60	Polaris SP.
13 . 16 . 0,41			0,57	42,79	42,22			13 . 16 . 42,97	Spica.
17 . 26 . 43,69			43,91	26,51	42,60			17 . 27 . 26,46	α Ophiuchi.
18 . 25 . 56,23			} 7,63					18 . 27 . 50,22	⊙'s center.
18 . 28 . 18,79									
18 . 37 . 36,73			36,85					18 . 38 . 19,44	Venus 1 L.
19 . 42 . 11,60			11,82	54,42	42,60			19 . 42 . 54,45	α Aquilæ.
1 . 0 . 54,70	0,93		58,88	42,27	43,39		42,78	1 . 1 . 41,69	Polaris.
2 . 53 . 9,91			10,11	53,06	42,95			2 . 53 . 52,99	α Ceti.
3 . 37 . 13,15			13,41					3 . 37 . 56,32	η Tauri.
3 . 54 . 28,93			29,18					3 . 55 . 12,10	A¹ Tauri.
4 . 27 . 1,38			1,65					4 . 27 . 44,58	☽ 1 L.
4 . 52 . 46,72			46,96					4 . 53 . 29,91	ι Tauri.
5 . 6 . 6,47			6,63	49,55	42,92			5 . 6 . 49,59	Rigel.
5 . 15 . 25,24			25,51	8,58	43,07			5 . 16 . 8,47	β Tauri.
6 . 32 . 11,63			11,88					6 . 32 . 54,89	Vesta.
18 . 39 . 10,78			} 22,16			0,84	44,46	18 . 41 . 7,27	⊙'s center.
18 . 41 . 33,30									
19 . 42 . 8,76			8,98	54,43	45,45			19 . 42 . 54,13	α Aquilæ.
4 . 25 . 56,93			57,16	42,53	45,37		45,30	4 . 26 . 42,61	Aldebaran.
5 . 15 . 22,88			23,15	8,59	45,44			5 . 16 . 8,63	β Tauri.
7 . 9 . 46,03			46,28					7 . 10 . 31,83	δ Geminorum.
7 . 23 . 35,03			35,32	20,84	45,52			7 . 24 . 20,88	Castor.
7 . 30 . 7,96			8,16	53,58	45,42			7 . 30 . 53,72	Procyon.

Error of Collimation = − 0″,68.

Level Error = + 3″,98.

APPARENT RIGHT ASCENSIONS

OF

POLARIS AND δ URSÆ MINORIS,

AND

MEAN RIGHT ASCENSIONS OF THE STARS

OBSERVED IN THE YEAR 1838,

AS DEDUCED FROM EACH DAY's OBSERVATION;

WITH

A CATALOGUE

OF THE

CONCLUDED MEAN RIGHT ASCENSIONS,

JANUARY 1, 1838.

POLARIS.

Day of Observation.	Apparent R.A.	Mean R.A. Jan. 1, 1838.
1838.	*h.* *m.* *s.*	*h.* *m.* *s.*
January 3	1 . 1 . 18,31	1 . 1 . 36,44
March 15	0 . 34,23	37,52
27	32,52	38,11
28	34,66	40,25
28	32,40	37,97
29	34,04	39,60
30	31,27	36,80
30	34,03	39,55
April 2	32,23	37,79
3	31,05	36,66
5	32,65	38,39
10	35,91	41,31
16	30,70	34,86
17	32,35	36,36
24	34,63	36,99
27	37,00	38,06
27	37,23	38,10
May 1	38,59	38,26
1	38,90	38,42
2	39,45	38,81
2	38,38	37,57
3	38,35	37,36
3	38,92	37,75
4	39,75	38,39
4	40,53	38,97
6	39,98	37,49
7	40,12	37,37
7	39,50	36,48
8	39,34	36,04
8	39,92	36,34
16	45,25	37,35
17	44,58	36,43
17	45,92	37,53
18	49,16	40,50
29	53,81	37,88
29	54,40	38,18
30	54,98	38,46
June 4	58,10	38,10
4	58,48	38,08
5	0 . 58,86	38,05
7	1 . 1,35	38,85
7	1,49	38,58
8	1,58	38,26
22	13,39	39,22
22	12,15	37,59
23	1 . 13,95	39,00
September 11	2 . 6,90	37,82
12	7,30	37,82
12	7,50	37,84
20	12,27	40,51
September 20	1 . 2 . 6,24	1 . 1 . 34,32
21	8,56	36,48
21	9,45	37,20
22	8,90	36,47
28	13,66	39,48
28	13,78	39,54
October 3	12,90	38,26
3	12,69	37,97
4	13,41	38,60
4	15,09	40,18
10	11,79	35,98
12	15,50	39,74
16	16,68	41,17
17	12,88	37,37
17	(23,81)	(48,29)
18	18,12	42,58
23	15,53	40,06
24	13,36	38,02
26	9,07	34,03
26	12,75	37,82
28	13,89	39,49
29	9,07	34,79
29	12,70	38,53
30	9,55	35,49
31	8,94	35,06
31	12,47	38,66
November 1	8,88	35,13
1	13,27	39,59
5	11,54	38,55
7	12,78	40,46
9	7,92	36,19
9	10,97	39,44
12	6,88	36,32
12	9,77	39,40
13	5,03	34,84
26	2 . 0,55	36,03
28	1 . 58,20	34,66
December 3	2 . 1,32	40,44
4	1 . 56,55	35,99
5	55,23	35,35
6	53,85	34,66
7	54,38	35,90
7	59,22	41,09
8	53,28	35,50
9	55,03	38,26
10	51,36	34,91
18	48,18	36,65
19	48,52	38,16
26	43,18	38,08
27	40,94	36,17
27	42,60	38,15
28	41,69	37,57

δ URSÆ MINORIS.

Day of Observation.	Apparent R.A.	Mean R.A. Jan. 1, 1838.
1838.	h. m. s.	h. m. s.
January 2	18 . 24 . 10,99	18 . 24 . 32,88
2	11,28	33,17
3	11,58	33,46
3	11,56	33,44
4	11,69	33,57
4	12,21	34,09
5	12,74	34,62
12	12,64	34,52
14	12,88	34,62
18	12,81	34,18
18	12,80	34,11
19	10,89	32,09
20	10,94	32,09
22	13,06	34,04
February 4	14,90	33,83
4	14,96	33,81
8	15,75	33,79
11	16,37	33,72
12	16,62	33,83
13	17,37	34,16
14	17,88	34,54
15	18,69	34,93
19	19,27	34,63
February 19	18 . 24 . 19,61	18 . 24 . 34,85
20	19,92	35,04
28	22,88	35,54
March 6	23,47	34,34
6	21,85	32,56
8	23,68	33,90
8	22,00	32,06
9	26,75	36,63
12	26,08	34,85
July 19	45,53	35,43
20	44,55	34,57
August 11	37,03	32,83
13	36,74	33,38
14	37,44	34,25
14	38,37	35,37
15	36,70	33,89
September 10	27,31	34,28
10	27,31	34,51
11	27,28	34,71

α ANDROMEDÆ.

		h.	m.	s.
Jan.	3	0	0	1,64
	4			1,46
	12			1,51
	19			1,56
	20			1,88
Feb.	6			1,44
April	1			1,66
	10			1,44
May	3			1,55
	4			1,71
	6			1,67
	7			1,70
Sept.	12			1,66
	20			1,63
	21			1,71
	27			1,63
Oct.	10			1,69
	11			1,69
	12			1,70
	13			1,76
	17			1,65
	26			1,64
	29			1,64
	30			1,48
	31			1,76
Nov.	1			1,71
	24			1,66
	28			1,64
Dec.	3			1,74
	7			1,55
	8			1,60
	10			1,72
	18			1,66

t Piscium.

		h.	m.	s.
Oct.	2	0	17	6,06
	3			6,08
	29			6,20
	31			6,27
Nov.	26			6,21

A.S.C. 79.

		h.	m.	s.
Jan.	3	0	39	53,61
Oct.	2			53,45
	3			53,36
	31			53,53
Nov.	1			53,52
	26			53,64

ε Piscium.

		h.	m.	s.
Jan.	3	0	54	32,59

ε Piscium *continued.*

		h.	m.	s.
Oct.	30	0	54	32,62
	31			32,67
Dec.	25			32,52

μ Piscium.

		h.	m.	s.
Dec.	25	1	21	42,32

✳ N.P.D. 33°. 38′.

		h.	m.	s.
Dec.	11	1	21	41,86

η Piscium.

		h.	m.	s.
Jan.	3	1	22	49,49
	4			49,56
Oct.	3			49,48
	4			49,37
Nov.	28			49,84
Dec.	4			49,47

ο Piscium.

		h.	m.	s.
Jan.	3	1	36	50,92
	4			50,81
Oct.	3			50,83
	4			50,59

✳ N.P.D. 36°. 54′.

		h.	m.	s.
Nov.	12	1	41	57,12
	24			56,89
	26			56,92
Dec.	4			56,83
	7			56,78
	8			56,60

γ^1 Arietis.

		h.	m.	s.
Nov.	1	1	44	39,18
Dec.	25			39,22

α ARIETIS.

		h.	m.	s.
Jan.	2	1	58	3,27
	3			3,34
	8			3,39
	29			3,38
Feb.	14			3,23

α ARIETIS *continued.*

		h.	m.	s.
March	9	1	58	3,45
	27			3,52
	28			3,30
Oct.	4			3,31
	10			3,30
	11			3,25
	17			3,22
	26			3,62
	29			3,47
Nov.	1			3,13
	12			3,46
	13			3,40
	22			3,37
	24			3,56
	26			3,37
Dec.	3			3,57
	4			3,43
	7			3,23
	8			3,32
	11			3,43
	25			3,35

θ^1 Arietis.

		h.	m.	s.
Dec.	25	2	9	7,68

ψ Arietis.

		h.	m.	s.
Jan.	4	2	21	55,89
	5			55,92
Oct.	4			55,79
Nov.	12			55,97
	29			56,41
	30			56,17

ν Arietis.

		h.	m.	s.
Nov.	29	2	29	37,65
	30			37,82

π Arietis.

		h.	m.	s.
Jan.	4	2	40	15,78
	5			15,76
Oct.	4			15,64
Nov.	2			15,64

ε Arietis.

		h.	m.	s.
Nov.	1	2	49	57,80
	2			57,52
Dec.	27			57,56

α CETI.

		h.	m.	s.
Jan.	2	2	53	49,15
	3			49,21
	4			49,06
Feb.	6			49,28
March	8			49,01
July	14			49,21
Nov.	1			49,18
	2			49,06
	30			49,27
Dec.	25			49,05
	27			49,14
	28			49,07

A.S.C. 340.

		h.	m.	s.
Feb.	20	2	57	24,48

δ Arietis.

		h.	m.	s.
Nov.	1	3	2	22,55
	2			22,41
Dec.	27			22,65

ζ Arietis.

		h.	m.	s.
Nov.	29	3	5	36,21
	30			36,25

14 Eridani.

		h.	m.	s.
Feb.	12	3	8	45,11
	14			45,20

g Arietis.

		h.	m.	s.
Jan.	5	3	14	45,26

ν Persei.

		h.	m.	s.
Feb.	12	3	34	12,67
	14			12,85
	20			12,54

η Tauri.

		h.	m.	s.
Jan.	5	3	37	51,93
July	15			52,08

η Tauri *continued.*

		h.	m.	s.
Nov.	2	3	37	51,97
	29			52,06
	30			52,11
Dec.	27			51,94
	28			51,82

m^2 Eridani.

Feb.	12	3	40	42,00
	14			42,02

A^1 Tauri.

Nov.	2	3	55	7,44
Dec.	27			7,66
	28			7,54

υ^1 Tauri.

Nov.	30	4	16	37,62
Dec.	7			37,32

71 Tauri.

Feb.	12	4	17	7,51
	14			7,32
March	6			7,23

ALDEBARAN.

Jan.	2	4	26	37,99
	3			37,95
	5			38,07
	16			38,09
	18			37,85
	20			38,04
	22			37,93
	29			37,85
Feb.	4			37,90
	6			38,09
	8			37,98
	12			37,91
	14			38,02
	20			38,01
	22			37,97
	28			38,08
March	6			37,90
	8			37,91
	9			37,97
	12			37,79
	14			37,83
	20			37,85
	27			37,80
	28			37,82
	30			37,78

ALDEBARAN *continued.*

		h.	m.	s.
April	3	4	26	37,99
	12			37,81
June	22			37,77
	29			37,70
July	4			37,90
	6			37,94
Nov.	29			37,97
	30			38,14
Dec.	2			37,97
	7			38,26
	25			37,94
	27			37,98
	31			38,03

τ Tauri.

Nov.	30	4	32	31,75
Dec.	7			31,62

ι Tauri.

Feb.	3	4	53	24,95
	4			24,96
March	3			25,08
Dec.	28			25,07

μ Leporis.

Feb.	12	5	5	39,64
	28			39,31
March	6			39,30

RIGEL.

Jan.	2	5	6	45,40
	3			45,34
	4			45,43
	5			45,49
	16			45,36
	18			45,45
	20			45,34
	22			45,43
	29			45,44
Feb.	3			45,37
	4			45,45
	8			45,38
	12			45,33
	20			45,39
	22			45,37

RIGEL *continued.*

		h.	m.	s.
March	8	5	6	45,30
	9			45,27
	19			45,29
	20			45,25
	27			45,33
	28			45,38
	30			45,20
April	3			45,33
	12			45,30
July	6			45,39
	19			45,35
Aug.	13			45,31
Nov.	29			45,35
Dec.	28			45,41

ο Orionis.

Feb.	12	5	13	29,94
	28			29,84
March	8			29,75

β TAURI.

Jan.	2	5	16	3,39
	3			3,36
	4			3,37
	5			3,39
	16			3,28
	18			3,41
	20			3,25
	22			3,32
Feb.	3			3,38
	4			3,23
	6			3,44
	8			3,27
	22			3,36
March	3			3,30
	9			3,43
	12			3,47
	17			3,39
	19			3,45
	20			3,27
	27			3,46
	28			3,34
	30			3,33
July	9			3,40
Aug.	13			3,20
Dec.	25			3,49
	28			3,27
	31			3,42

θ^2 Orionis.

		h.	m.	s.
Feb.	12	5	27	25,79
	14			25,78
	28			25,76

ζ Tauri.

March	30	5	27	58,04

l Aurigæ.

March	3	5	28	14,17
	6			14,19
	7			14,40

A.S.C. 701.

Feb.	12	5	33	46,68
	14			46,64
	28			46,43
March	6			46,53

C Tauri.

Feb.	4	5	43	8,80
March	3			8,75
	6			8,88
Dec.	2			8,65

α ORIONIS.

Jan.	2	5	46	24,19
	4			24,27
	11			24,22
	16			24,21
	20			24,11
	22			24,23
Feb.	4			24,34
	6			24,38
	8			24,37
	12			24,37
	14			24,30
	28			24,22
March	3			24,21
	8			24,25
	9			24,15
	12			24,28
	20			24,19
	27			24,13
	28			24,12
	30			24,16

α ORIONIS *continued.*

		h.	m.	s.
July	4	5	46	24,13
	6			24,27
	9			24,19
	15			24,29
	16			24,19
	26			24,22
	27			24,21
Sept.	10			24,24
Dec.	2			24,21
	20			24,29
	25			24,24

κ Aurigæ.

Feb.	4	6	5	3,16
April	1			3,29
	3			3,44

l Orionis.

Feb.	12	6	8	10,86
	14			10,85
	28			10,69
March	3			10,74
	6			10,78

ε Geminorum.

April	1	6	33	57,76
	3			57,82

q Camelopardi.

March	3	6	36	11,79

ω¹ Geminorum.

Dec.	2	6	52	32,02

δ Geminorum.

Dec.	31	7	10	26,67

ι Geminorum.

April	1	7	15	39,36

CASTOR.

		h.	m.	s.
Feb.	8	7	24	15,23
	11			15,09
	12			15,12
	14			15,26
	19			15,21
	24			15,22
	28			15,21
March	3			15,24
	6			15,23
	7			15,23
	8			15,19
	10			15,16
	14			15,19
	16			15,25
	17			15,32
	27			15,22
	28			15,24
	30			15,27
April	1			15,27
	12			15,13
May	5			15,01
	7			14,96
	8			15,07
	9			15,05
	10			15,06
	11			14,98
	12			15,15
June	12			14,91
	21			15,15
	22			15,14
Aug.	2			15,31
	5			15,24
Sept.	6			15,24
	10			15,44
Dec.	31			15,28

PROCYON.

Feb.	11	7	30	49,08
	12			49,16
	13			49,20
	14			49,11
	16			49,17
	19			49,14
	24			49,12
	28			49,02
March	3			49,02
	6			49,02
	7			49,12
	8			49,04
	10			49,03
	12			48,99
	16			49,01
	17			49,01

PROCYON *continued.*

		h.	m.	s.
March	20	7	30	49,16
	27			49,15
	28			49,23
	30			49,14
April	1			49,00
	12			49,05
May	5			49,11
	7			49,01
	8			49,05
	9			49,18
	10			49,01
	11			49,06
	12			49,02
	15			49,12
	27			49,04
June	12			49,03
	19			48,82
	21			49,03
	22			48,96
	23			49,41
	24			48,98
July	15			49,01
	18			49,06
Aug.	7			48,84
	16			49,00
	22			49,07
	23			49,04
	24			49,04
	26			49,08
Sept.	4			49,04
	10			49,21
Dec.	20			49,06
	31			49,20

κ Geminorum.

March	6	7	34	39,60
	7			39,60

POLLUX.

Feb.	12	7	35	23,65
	13			23,54
	16			23,55
	19			23,55
	24			23,59
	28			23,65
March	3			23,72
	8			23,67
	10			23,57
	12			23,68
	14			23,68
	16			23,67
	17			23,54
	20			23,55

POLLUX *continued.*

		h.	m.	s.
March	27	7	35	23,54
	28			23,58
	30			23,62
April	1			23,62
	11			23,65
	12			23,64
May	5			23,61
	7			23,44
	8			23,43
	9			23,70
	10			23,57
	11			23,56
	12			23,64
	15			23,46
	26			23,70
	27			23,61
June	12			23,53
	19			23,58
	21			23,53
	22			23,60
	23			23,55
	24			23,66
July	19			23,52
Aug.	2			23,52
	13			23,65
	14			23,70
	16			23,64
	22			23,72
	23			23,59
	24			23,63
	29			23,67
Sept.	2			23,66
	4			23,61
Dec.	20			23,68

11 Argus.

Feb.	13	7	49	53,72
	24			53,87
	28			53,76
March	3			53,79
	6			53,79

55 Camelopardi.

Feb.	12	7	56	35,51
	13			35,61
	19			35,55
	24			35,50
	28			35,73
March	3			35,81

A.S.C. 997.

		h.	m.	s.
Feb.	12	8	2	26,33
	13			26,11
	24			26,61
	28			26,14
March	3			26,18
	7			26,19

ϕ^2 Cancri.

		h.	m.	s.
Feb.	12	8	16	58,80
	13			58,63
	19			58,56
	24			58,76
	28			58,82
March	3			58,82
	6			58,83

h Cancri.

		h.	m.	s.
Feb.	12	8	23	50,63
	13			50,50
	19			50,40
	24			50,61
	28			50,51
March	3			50,50
	6			50,61

γ Cancri.

		h.	m.	s.
March	6	8	33	54,04
	7			54,07

q Cancri.

		h.	m.	s.
March	7	9	9	55,85

α HYDRÆ.

		h.	m.	s.
Feb.	9	9	19	37,61
	10			37,60
	11			37,73
	16			37,57
March	7			37,72
	8			37,83
	10			37,66
	12			37,61
	16			37,56
	17			37,64
	20			37,76
	21			37,66
	27			37,55
	28			37,75
	30			37,66

α HYDRÆ *continued.*

		h.	m.	s.
April	7	9	19	37,63
	9			37,75
	16			37,63
	21			37,56
May	1			37,58
	3			37,59
	4			37,74
	7			37,57
	9			37,45
June	23			37,54
July	2			37,67
	9			37,67

d Ursæ Majoris.

		h.	m.	s.
Feb.	12	9	20	1,66
	24			1,41
	28			1,74
March	3			2,16

λ Leonis.

		h.	m.	s.
Feb.	8	9	22	27,87
	9			27,95
March	7			27,90
	8			27,89

h Leonis.

		h.	m.	s.
March	12	9	23	16,28
	16			16,11
	17			16,13
	20			16,21

ψ Leonis.

		h.	m.	s.
Feb.	8	9	34	53,88
	9			54,11

REGULUS.

		h.	m.	s.
Feb.	8	9	59	44,27
	10			44,34
	11			44,33
	12			44,38
	16			44,40
	24			44,24
March	3			44,33
	6			44,41
	7			44,28
	8			44,23
	9			44,32

REGULUS *continued.*

		h.	m.	s.
March	10	9	59	44,36
	12			44,31
	15			44,22
	16			44,29
	17			44,31
	20			44,36
	21			44,36
	26			44,34
	27			44,28
	28			44,34
	30			44,37
April	7			44,29
	9			44,27
	10			44,33
	12			44,41
	16			44,26
	21			44,14
	24			44,28
	27			44,26
May	2			44,31
	3			44,59
	4			44,30
	5			44,39
	7			44,38
	10			44,25
	11			44,36
	12			44,31
	16			44,23
	18			44,20
	26			44,24
	30			44,23
June	6			44,24
July	2			44,26
	5			44,50
	9			44,15
	12			44,31
	13			44,24
	15			44,26
	16			44,38
	17			44,05
Sept.	2			44,21
	19			44,20
	20			44,13
	21			44,39
	27			44,05
Oct.	2			44,21
	11			44,16
	12			44,29
	16			44,29
	17			44,32
	19			44,14
	24			44,39
	26			44,22
Nov.	9			44,29

γ Leonis.

		h.	m.	s.
Feb.	9	10	11	1,84
	10			1,73

γ Leonis *continued.*

		h.	m.	s.
March	8	10	11	1,88
	9			1,84
May	3			1,66
	4			1,87
	30			1,75
Oct.	12			1,97

i Sextantis.

		h.	m.	s.
Feb.	12	10	18	20,65
March	26			20,78
	27			20,54
	28			20,59
	30			20,59

k Sextantis.

		h.	m.	s.
Feb.	12	10	21	15,25
	24			15,15
March	6			15,06
	7			15,02

ρ Leonis.

		h.	m.	s.
Feb.	9	10	24	16,52
	10			16,54
May	3			16,46
	4			16,58

34 Sextantis.

		h.	m.	s.
Feb.	12	10	34	15,47
	24			15,60
March	6			15,53
	7			15,54

n Sextantis.

		h.	m.	s.
Feb.	12	10	36	48,67
March	8			48,46
	10			48,57
	12			48,54
	15			48,52
	17			48,58

l Leonis.

		h.	m.	s.
March	9	10	40	44,34
	10			44,19

c Leonis.	
	h. m. s.
Nov. 9	10 . 52 . 20,77

χ Leonis.	
Feb. 10	10 . 56 . 39,33
11	39,44
March 9	39,49
10	39,47
May 3	39,24
4	39,65

σ Leonis.	
May 3	11 . 12 . 46,75
4	46,98

ι Leonis.	
Feb. 10	11 . 15 . 28,54
11	28,57
April 7	28,89
9	28,57

17 Hydræ et Crateris.	
Feb. 12	11 . 24 . 15,53
March 15	15,37
17	15,40
20	15,39

A.S.C. 1355.	
March 21	11 . 24 . 33,66
27	33,76
28	33,57

υ Leonis.	
April 7	11 . 28 . 39,55
8	39,31

ν Virginis.	
March 10	11 . 37 . 31,97
11	31,95
May 4	31,94
5	32,01

β LEONIS.	
	h. m. s.
Feb. 12	11 . 40 . 47,58
March 12	47,49
15	47,61
21	47,39
26	47,51
27	47,58
28	47,51
30	47,57
April 8	47,53
10	47,50
16	47,55
17	47,52
21	47,44
24	47,46
May 1	47,37
3	47,47
7	47,71
8	47,77
15	47,57
16	47,66
17	47,60
18	47,50
22	47,28
24	47,53
29	47,49
30	47,44
June 4	47,36
6	47,55
7	47,62
8	47,48
12	47,60
July 5	47,56
6	47,37
9	47,71
18	47,42
Oct. 17	47,52
18	47,59
29	47,54
Nov. 5	47,50

β Virginis.	
Feb. 11	11 . 42 . 15,51
March 10	15,49
May 4	15,49
5	15,75

b Virginis.	
Feb. 11	11 . 51 . 39,13
12	39,16
April 7	39,11
8	39,01

A.S.C. 1388.	
	h. m. s.
March 15	11 . 52 . 44,24
21	44,23
27	44,40
28	44,28

3 Corvi.	
March 28	12 . 2 . 44,08
30	44,13
April 16	43,98

A.S.C. 1404.	
April 17	12 . 4 . 30,98
24	30,80
May 3	30,35
4	30,72

n Virginis.	
March 28	12 . 10 . 22,09
30	22,20
April 16	21,99

H Virginis.	
April 24	12 . 11 . 0,44
May 3	0,22
4	0,31

η Virginis.	
March 11	12 . 11 . 37,27
12	37,22
April 7	37,55
8	37,25

κ Draconis.	
March 28	12 . 26 . 31,89
30	31,70
April 16	32,12

γ^1 Virginis.	
March 11	12 . 33 . 27,29
12	27,37

γ^1 Virginis *continued.*	
	h. m. s.
April 8	12 . 33 . 27,29
9	27,34
May 5	27,49
Dec. 9	27,32

ψ Virginis.	
April 8	12 . 45 . 56,12
9	56,19
Dec. 9	55,99

f Canum Venaticorum.	
April 21	12 . 58 . 9,44
May 11	9,25
12	9,42

θ Virginis.	
March 12	13 . 1 . 34,14
May 7	34,07
8	34,12

w Comæ Berenices.	
May 10	13 . 4 . 18,30
11	18,42
12	18,53

61 Virginis.	
May 10	13 . 9 . 56,43
11	56,53
15	56,56

SPICA.	
March 12	13 . 16 . 40,13
April 9	39,99
21	40,14
May 8	40,17
10	40,15
11	39,98
12	40,20
15	40,10
June 30	40,33

Spica *continued.*

	h.	m.	s.
July 3	13	16	40,08
4			40,14
28			39,99
30			40,07
Nov. 11			40,18
12			40,11
13			39,98
Dec. 7			40,05
9			40,19
19			39,89
26			40,06
27			40,25

m Virginis.

	h.	m.	s.
June 4	13	33	6,98

o Virginis.

	h.	m.	s.
May 3	13	34	55,29

3 Bootis.

	h.	m.	s.
May 10	13	39	11,65
11			11,78
12			11,80

i Draconis.

	h.	m.	s.
April 27	13	46	42,26
May 3			41,76

Arcturus.

	h.	m.	s.
April 11	14	8	16,70
21			16,67
23			16,56
24			16,63
27			16,67
May 1			16,48
3			16,56
4			16,56
10			16,60
11			16,71
14			16,46
17			16,47
18			16,65
22			16,44
26			16,56
29			16,59
June 5			16,50
6			16,55
8			16,66

Arcturus *continued.*

	h.	m.	s.
June 12	14	8	16,77
19			16,53
21			16,52
22			16,55
July 3			16,52
4			16,50
11			16,45
13			16,46
28			16,55
Aug. 11			16,46
Sept. 28			16,40
Oct. 3			16,47
19			16,50
20			16,47
24			16,59
28			16,38
Nov. 5			16,58
7			16,52
9			16,41
11			16,41
12			16,56
13			16,45
29			16,45
Dec. 3			16,51
7			16,41

λ Virginis.

	h.	m.	s.
April 11	14	10	21,27
May 7			21,27
8			21,29

t Bootis.

	h.	m.	s.
April 24	14	11	25,97
May 3			25,88

2 Libræ.

	h.	m.	s.
June 4	14	14	43,35
5			43,03

A.S.C. 1633.

	h.	m.	s.
May 4	14	15	35,08
7			34,86
8			34,92
10			34,98

10 Hydræ Con.

	h.	m.	s.
May 7	14	36	38,29

ε Bootis.

	h.	m.	s.
April 11	14	37	54,58
May 9			54,87
12			54,70
14			54,68
June 4			54,88
5			54,67
7			54,72
8			54,64
19			54,86
29			54,84
July 3			54,68
4			54,78
6			54,63
9			54,77
11			54,84
16			54,81
18			54,78
20			54,78
28			54,76
29			54,84
31			54,77
Oct. 29			54,86
30			54,58
Nov. 7			54,68
9			54,88
11			54,68
13			54,76
29			54,61
30			54,76
Dec. 2			54,65
3			54,67
5			54,75
7			54,69
9			54,80

11 Hydræ Con.

	h.	m.	s.
May 4	14	37	58,11
8			58,25
10			58,23
11			58,35

A.S.C. 1673.

	h.	m.	s.
May 15	14	38	1,94
17			1,90

13 Hydræ Con.

	h.	m.	s.
May 22	14	38	29,99
26			30,00
28			29,96

α^2 Libræ.

	h.	m.	s.
April 11	14	41	55,96
23			55,70
24			55,74
27			55,71
May 3			55,59
4			55,67
7			55,76
8			55,63
9			55,88
10			55,79
11			55,66
12			55,80
14			55,89
15			55,63
16			55,85
17			55,72
22			56,08
26			55,76
28			55,78
29			55,74
30			55,62
June 2			55,77
4			55,71
5			55,87
7			55,62
8			55,69
19			55,75
21			55,86
29			55,69
July 3			55,86
4			55,66
6			55,71
9			55,66
16			55,65
29			55,71
31			55,74
Aug. 11			55,83

A.S.C. 1690.

	h.	m.	s.
May 7	14	48	1,33
10			1,27
11			1,39

1 Serpentis.

	h.	m.	s.
May 14	14	49	15,43
15			15,18
16			15,49

A.S.C. 1698.

	h.	m.	s.
April 23	14	49	38,68
24			38,43
May 12			38,56
17			38,57

20 Libræ.			
	h.	m.	s.
May 8	14	54	36,27
10			36,32

A.S.C. 1709.			
April 23	14	56	48,82
24			48,61
May 7			48,70

A.S.C. 1720.			
April 24	15	1	32,23

ι^1 Libræ.			
April 11	15	3	0,14

A.S.C. 1752.			
April 23	15	21	2,07
24			1,99
May 7			1,72
8			1,87

A.S.C. 1769.			
April 24	15	27	46,26
May 10			46,28
11			46,39
14			46,46

α CORONÆ BOREALIS.			
May 4	15	27	49,88
7			50,08
8			49,93
9			49,81
16			49,75
17			49,92
28			49,85
29			49,82
June 19			49,90
July 4			49,97
5			49,87
6			49,87
7			49,83
9			49,85
13			49,99
16			49,94
18			49,85
24			49,75
Aug. 2			49,81

α CORONÆ BOR. *continued.*			
	h.	m.	s.
Oct. 11	15	27	49,87
19			50,01
20			49,79
24			49,90
29			49,82
30			49,89
Nov. 6			49,78
8			49,95
14			49,94
29			49,90
Dec. 2			49,70
3			49,86
5			49,86
7			49,94
9			49,78
14			49,90

A^1 Serpentis.			
May 15	15	28	15,35
22			15,33
26			15,43

χ Libræ.			
May 10	15	30	43,10

α SERPENTIS.			
April 21	15	36	17,69
23			17,66
24			17,63
27			17,52
May 1			17,84
3			17,54
26			17,68
28			17,82
29			17,67
June 2			17,62
4			17,80
8			17,84
9			17,76
12			17,72
15			17,69
19			17,71
21			17,68
22			17,77
23			17,57
July 4			17,64
5			17,56
6			17,62
7			17,61
9			17,63
16			17,56
18			17,74
24			17,68
31			17,62
Aug. 2			17,69

f^1 Scorpii.			
	h.	m.	s.
May 26	15	44	14,14

A.S.C. 1817.			
May 29	15	47	26,48

δ Scorpii.			
May 10	15	50	45,99
July 4			46,22
5			46,18

A.S.C. 1848.			
May 11	16	0	59,02
June 15			59,04

c^2 Scorpii.			
July 4	16	2	20,28
5			20,21

δ OPHIUCHI.			
Feb. 5	16	5	51,63
13			51,56
14			51,68
15			51,60
May 10			51,70
11			51,85
30			51,84
June 9			51,68
15			51,61
July 21			51,56

p Scorpii.			
June 22	16	9	18,73
23			18,76

ANTARES.			
Feb. 5	16	19	29,17
13			29,20
15			29,34
May 11			29,29
30			29,29

ANTARES *continued.*			
	h.	m.	s.
June 8	16	19	29,34
9			29,22
15			29,35
22			29,23
23			29,33
July 6			29,68
9			29,39
17			29,59
21			29,40
Oct. 24			29,12
29			29,09

i Scorpii.			
July 16	16	20	22,68

τ Scorpii.			
May 10	16	25	48,76
11			48,51

25 Scorpii.			
May 10	16	36	56,75
11			56,82
July 4			56,97

ε Ursæ Minoris.			
Aug. 13	17	2	48,39
14			48,91
15			48,63

29 Scorpii.			
May 30	17	4	9,38
July 9			9,60

A Ophiuchi (preceding).			
July 4	17	5	23,61
5			23,48
13			23,70
16			23,54

30 Scorpii.			
July 24	17	6	16,18
28			16,55
31			16,42
Aug. 2			16,32

α HERCULIS.

		h.	m.	s.
Jan.	3	17	7	15,77
May	11			15,87
	26			15,84
June	4			15,74
	7			15,93
	8			15,67
	9			15,81
	23			15,82
July	6			15,78
	7			15,89
	20			15,91
Aug.	5			15,83
	7			15,85
	8			15,83
	11			15,77
Oct.	13			15,59
	19			16,09
	29			15,96
	30			15,90
Nov.	7			15,87
	8			15,85
	12			15,80
	13			15,88
Dec.	4			15,91
	14			16,04

A.S.C. 1974.

June	22	17	8	13,81
July	9			13,85

A.S.C. 1979.

May	30	17	10	27,95

θ Ophiuchi.

June	7	17	12	4,12
	11			4,11
Aug.	29			4,12

d Ophiuchi.

Aug.	2	17	17	1,16
	7			0,77
	15			1,05

α OPHIUCHI.

		h.	m.	s.
Jan.	3	17	27	25,09
	4			24,98
	12			25,23
	18			25,17
	19			24,98
May	11			25,22
	26			24,94
	28			24,90
	30			25,24
June	4			25,11
	9			25,08
	15			25,03
	21			25,10
	22			25,13
July	4			25,10
	5			25,04
	20			25,08
	24			25,15
	28			25,15
	31			25,09
Aug.	2			25,11
	5			24,94
	6			25,04
	8			24,99
	13			25,14
	14			25,09
	15			24,99
Sept.	11			24,95
	28			25,19
Oct.	11			25,09
	13			25,08
	17			25,00
	19			25,05
	24			25,09
	29			25,01
Nov.	6			25,06
	8			25,07
	13			24,97
	14			25,07
	26			25,12
Dec.	3			24,99
	4			25,08
	8			25,18
	10			24,96
	26			25,15
	27			25,03

3 Sagittarii.

May	11	17	37	22,22
June	7			22,06
	8			22,16
Aug.	2			22,17
	5			22,12

A.S.C. 2047.

		h.	m.	s.
June	4	17	40	47,30
July	9			47,52
	13			47,38
	16			47,32

γ^2 Sagittarii.

May	11	17	55	24,24
Aug.	29			24,31

A.S.C. 2083.

July	9	17	57	27,77
	11			27,78
	12			27,54
	16			27,66

δ Sagittarii.

June	8	18	10	37,70
Aug.	2			37,52
	5			37,49
	29			37,42
	30			37,33

s^2 Clypei Sobieski.

July	4	18	24	23,86

⁎ N.P.D. 107°. 20′.

July	11	18	27	17,53
	13			17,51
	16			17,44

A.S.C. 2151.

July	9	18	28	28,31
	12			28,13
	31			27,61

φ Sagittarii.

June	8	18	35	32,16
Aug.	2			(32,78)
	5			32,10

σ Sagittarii.

Aug.	30	18	45	13,12
	31			12,99

τ Sagittarii.

		h.	m.	s.
July	6	18	56	49,39
Aug.	30			49,49
	31			49,34
Oct.	24			49,43

h^2 Sagittarii.

Sept.	28	19	26	50,76
	30			50,59
Oct.	24			50,68

α AQUILÆ.

Jan.	4	19	42	52,89
	5			52,57
	18			52,79
	19			52,86
Feb.	5			52,70
	11			52,52
	12			52,71
	13			52,72
	15			52,72
	19			52,74
March	6			52,65
Aug.	5			52,82
	6			52,77
	8			52,72
	11			52,74
	13			52,77
	14			52,77
	15			52,75
	22			52,76
	23			52,77
	24			52,81
	28			52,80
	30			52,71
	31			52,71
Sept.	3			52,78
	8			52,79
	11			52,70
	12			52,74
	20			52,83
	21			52,77
	28			52,80
	30			52,79
Oct.	2			52,87
	3			52,83
	4			52,83
	11			52,79
	12			52,78
	13			52,96
	17			52,81
	19			52,83
	20			52,97
	24			52,73

α AQUILÆ *continued.*

	h.	m.	s.
Oct. 26	19	42	52,82
30			53,01
Nov. 2			52,88
6			52,82
7			52,76
9			52,69
12			52,78
13			52,78
24			52,77
30			52,69
Dec. 5			52,75
6			52,78
8			52,74
14			52,81
15			52,75
18			52,87
27			52,82
28			52,84
31			52,51

β AQUILÆ.

	h.	m.	s.
March 6	19	47	21,35
Aug. 5			21,46
6			21,48
8			21,38
11			21,43
13			21,46
15			21,29
22			21,39
23			21,24
24			21,30
28			21,45
30			21,34
31			21,46
Sept. 3			21,40
8			21,29
11			21,27
12			21,37
21			21,31
28			21,36
30			21,32
Oct. 2			21,34
3			21,38
4			21,38
11			21,37
12			21,47
13			21,43
17			21,42
19			21,66
20			21,54
24			21,41
26			21,44
30			21,38
Nov. 6			21,39
7			21,32
9			21,35
12			21,41
13			21,23

β AQUILÆ *continued.*

	h.	m.	s.
Nov. 24	19	47	21,29
30			21,37
Dec. 5			21,41
6			21,33

c Sagittarii.

	h.	m.	s.
Aug. 31	19	52	41,18
Sept. 28			41,15
30			41,31
Oct. 13			41,25

α² CAPRICORNI.

	h.	m.	s.
Aug. 6	20	9	3,71
8			3,71
11			3,79
13			3,76
15			3,89
21			3,72
22			3,72
30			3,72
31			3,68
Sept. 8			3,71
11			3,71
15			3,73
20			3,72
21			3,93
30			3,71
Oct. 3			3,74
4			3,71
11			3,79
13			3,60
17			3,81
26			3,70
30			3,63
Nov. 7			3,80
9			3,79
12			3,66
13			3,75
24			3,60
Dec. 6			3,81

f Capricorni.

	h.	m.	s.
Aug. 31	20	20	0,46

ψ Capricorni.

	h.	m.	s.
Aug. 4	20	36	29,99
Oct. 26			29,38

η Capricorni.

	h.	m.	s.
Aug. 5	20	55	10,54
6			10,53
Sept. 28			10,89
30			10,80

∗ N.P.D. 25°. 2′.

	h.	m.	s.
Nov. 14	21	2	38,60
24			38,14
26			37,71

6 Cephei.

	h.	m.	s.
Nov. 13	21	15	59,91
24			59,97
26			60,05

ζ Capricorni.

	h.	m.	s.
Oct. 26	21	17	24,41

β AQUARII.

	h.	m.	s.
Aug. 5	21	23	1,79
8			1,67
21			1,70
27			1,79
29			1,59
30			1,52
Sept. 13			1,87
15			1,57
20			1,79
21			1,65
22			1,69
30			1,69
Oct. 3			1,71
4			1,68
12			1,72
13			1,58
17			1,67
20			1,61
26			1,61
29			1,75
30			1,67
31			1,52
Nov. 1			1,79
13			1,68
14			1,84
22			1,69
24			1,63
26			1,62

γ Capricorni.

	h.	m.	s.
Sept. 30	21	31	6,49

γ Capricorni *continued.*

	h.	m.	s.
Oct 13	21	31	6,32
26			6,30

κ Capricorni.

	h.	m.	s.
Aug. 6	21	33	36,38
11			36,26
13			36,00
14			36,11
15			36,42

δ Capricorni.

	h.	m.	s.
Aug. 5	21	38	5,62
6			5,44
Sept. 30			5,75
Oct. 13			5,35
Nov. 24			5,58

α AQUARII.

	h.	m.	s.
Aug. 13	21	57	27,68
14			27,83
21			27,76
22			27,82
24			27,78
27			27,84
30			27,77
Sept. 13			27,73
15			27,90
20			27,72
21			27,92
22			27,71
27			27,83
30			27,83
Oct. 13			27,88
17			27,82
20			27,80
26			27,73
29			27,86
31			27,79
Nov. 1.			27,62
7			27,79
10			27,86
26			27,68
Dec. 15			27,78

ι Aquarii.

	h.	m.	s.
Aug. 6	21	57	40,97
8			40,94
Nov. 24			40,88

σ Aquarii.	h.	m.	s.
Aug. 6	22	22	4,05
8			4,17
Sept. 30			4,32
Oct. 13			4,13

∗ N.P.D. 24°. 11′.	h.	m.	s.
Oct. 31	22	33	36,95
Nov. 9			37,32
12			36,87
24			37,55

∗ N.P.D. 24°. 20′.	h.	m.	s.
Dec. 15	22	35	21,72

λ Aquarii.	h.	m.	s.
Aug. 8	22	44	9,48
Nov. 24			9,68
26			9,73

α PEGASI.	h.	m.	s.
Jan. 5	22	56	41,92

α PEGASI *continued.*	h.	m.	s.
Feb. 14	22	56	41,91
April 1			41,78
10			41,53
11			41,95
May 16			41,73
17			41,78
Aug. 6			41,75
11			41,74
13			41,68
14			41,89
15			41,74
21			41,80
23			41,81
24			41,88
28			41,91
29			41,91
30			41,81
31			41,76
Sept. 3			41,79
4			41,79
8			41,89
10			41,79
11			41,75
12			41,83
13			41,66
15			41,78
20			41,87
21			41,69
27			41,75
28			42,05
Oct. 2			41,72

α PEGASI *continued.*	h.	m.	s.
Oct. 3	22	56	41,84
13			41,82
17			41,83
26			41,68
29			41,83
30			41,90
31			41,88
Nov. 1			42,00
7			41,80
9			41,82
10			41,75
12			41,80
13			41,82
22			41,76
24			41,81
26			41,92
30			41,75
Dec. 3			41,88
4			41,76
7			41,72
8			41,92
10			41,80
11			41,71
15			41,65
18			41,71
27			41,70

φ Aquarii.	h.	m.	s.
Sept. 3	23	5	55,80
4			55,89
Oct. 29			55,86

κ^1 Piscium.	h.	m.	s.
Sept. 3	23	18	37,75
4			37,68
Oct. 2			37,72
13			37,79

n Piscium.	h.	m.	s.
Nov. 26	23	39	36,98

q Piscium.	h.	m.	s.
Oct. 29	23	53	31,41
Nov. 26			31,41

∗ N.P.D. 25°. 26′.	h.	m.	s.
Dec. 11	23	53	36,82

∗ N.P.D. 26°. 7′.	h.	m.	s.
Nov. 9	23	56	51,23

∗ N.P.D. 26°. 42′.	h.	m.	s.
Dec. 6	23	58	4,30

CATALOGUE OF THE CONCLUDED MEAN RIGHT ASCENSIONS, JAN. 1, 1838; WITH THE ANNUAL VARIATIONS.

Name of Star.	Number of Observations.	Mean R.A. Jan. 1, 1838.	Annual Variation.	Name of Star.	Number of Observations.	Mean R.A. Jan. 1, 1838.	Annual Variation.
		h. m. s.	s.			h. m. s.	s.
α ANDROMEDÆ	33	0. 0. 1,64	+ 3,070	11 Argus	5	7.49.53,79	+ 2,578
t Piscium	5	0.17. 6,16	+ 3,070	55 Camelopardi	6	7.56.35,62	+ 6,107
A.S.C. 79	6	0.39.53,52	+ 3,086	A.S.C. 997	6	8. 2.26,26	+ 3,278
ε Piscium	4	0.54.32,60	+ 3,106	ϕ^2 Cancri	7	8.16.58,75	+ 3,643
POLARIS	101	1. 1.37,77	+ 16,297	h Cancri	7	8.23.50,54	+ 3,271
* N.P.D. 33°. 38′	1	1.21.41,86	+ 3,769	γ Cancri	2	8.33.54,06	+ 3,493
μ Piscium	1	1.21.42,32	+ 3,111	q Cancri	1	9. 9.55,85	+ 3,369
η Piscium	6	1.22.49,54	+ 3,189	α HYDRÆ	27	9.19.37,64	+ 2,950
o Piscium	4	1.36.50,79	+ 3,148	d Ursæ Majoris	4	9.20. 1,74	+ 5,512
* N.P.D. 36°. 54′	6	1.41.56,86	+ 3,834	λ Leonis	4	9.22.27,90	+ 3,441
γ^1 Arietis	2	1.44.39,20	+ 3,264	h Leonis	4	9.23.16,18	+ 3,224
α ARIETIS	26	1.58. 3,37	+ 3,346	ψ Leonis	2	9.34.53,99	+ 3,277
θ^1 Arietis	1	2. 9. 7,68	+ 3,315	REGULUS	65	9.59.44,29	+ 3,222
ψ Arietis	6	2.21.56,03	+ 3,304	γ Leonis	8	10.11. 1,82	+ 3,300
ν Arietis	2	2.29.37,74	+ 3,382	i Sextantis	5	10.18.20,63	+ 3,067
π Arietis	4	2.40.15,71	+ 3,326	k Sextantis	4	10.21.15,12	+ 3,050
ε Arietis	3	2.49.57,63	+ 3,408	ρ Leonis	4	10.24.16,53	+ 3,166
α CETI	12	2.53.49,14	+ 3,126	34 Sextantis	4	10.34.15,54	+ 3,106
A.S.C. 340	1	2.57.24,48	+ 4,138	n Sextantis	6	10.36.48,56	+ 3,096
δ Arietis	3	3. 2.22,54	+ 3,398	l Leonis	2	10.40.44,27	+ 3,160
ζ Arietis	2	3. 5.36,23	+ 3,427	c Leonis	1	10.52.20,77	+ 3,116
14 Eridani	2	3. 8.45,16	+ 2,899	χ Leonis	6	10.56.39,44	+ 3,086
g Arietis	1	3.14.45,26	+ 3,517	σ Leonis	2	11.12.46,87	+ 3,102
ν Persei	3	3.34.12,69	+ 4,035	ι Leonis	4	11.15.28,64	+ 3,121
η Tauri	7	3.37.51,99	+ 3,546	17 Hydræ et Crat.	4	11.24.15,42	+ 2,955
m^2 Eridani	2	3.40.42,01	+ 2,571	A.S.C. 1355	3	11.24.33,66	+ 3,043
A^1 Tauri	3	3.55. 7,55	+ 3,520	υ Leonis	2	11.28.39,43	+ 3,068
υ^1 Tauri	2	4.16.37,47	+ 3,564	ν Virginis	4	11.37.31,97	+ 3,086
71 Tauri	3	4.17. 7,35	+ 3,395	β LEONIS	39	11.40.47,52	+ 3,066
ALDEBARAN	38	4.26.37,94	+ 3,426	β Virginis	4	11.42.15,56	+ 3,124
τ Tauri	2	4.32.31,69	+ 3,584	b Virginis	4	11.51.39,10	+ 3,072
ι Tauri	4	4.53.25,02	+ 3,568	A.S.C. 1388	4	11.52.44,29	+ 3,067
μ Leporis	3	5. 5.39,42	+ 2,686	3 Corvi	3	12. 2.44,06	+ 3,074
RIGEL	29	5. 6.45,36	+ 2,878	A.S.C. 1404	4	12. 4.30,71	+ 2,949
o Orionis	3	5.13.29,84	+ 3,055	n Virginis	3	12.10.22,09	+ 3,068
β TAURI	27	5.16. 3,36	+ 3,782	H Virginis	3	12.11. 0,32	+ 3,077
θ^2 Orionis	3	5.27.25,78	+ 2,940	η Virginis	4	12.11.37,32	+ 3,068
ζ Tauri	1	5.27.58,04	+ 3,577	κ Draconis	3	12.26.31,90	+ 2,600
l Aurigæ	3	5.28.14,25	+ 3,844	γ^1 Virginis	6	12.33.27,35	+ 3,022
A.S.C. 701	4	5.33.46,57	+ 3,401	ψ Virginis	3	12.45.56,10	+ 3,108
C Tauri	4	5.43. 8,77	+ 3,763	f Canum Venat.	3	12.58. 9,37	+ 2,820
α ORIONIS	31	5.46.24,23	+ 3,243	θ Virginis	3	13. 1.34,11	+ 3,097
κ Aurigæ	3	6. 5. 3,30	+ 3,825	w Comæ Berenices	3	13. 4.18,42	+ 2,787
l Orionis	5	6. 8.10,78	+ 3,303	61 Virginis	3	13. 9.56,51	+ 3,106
ε Geminorum	2	6.33.57,79	+ 3,693	SPICA	21	13.16.40,10	+ 3,150
q Camelopardi	1	6.36.11,79	+ 6,520	m Virginis	1	13.33. 6,98	+ 3,140
ω^1 Geminorum	1	6.52.32,02	+ 3,660	o Virginis	1	13.34.55,29	+ 3,027
δ Geminorum	1	7.10.26,67	+ 3,592	3 Bootis	3	13.39.11,74	+ 2,789
ι Geminorum	1	7.15.39,36	+ 3,744	i Draconis	2	13.46.42,01	+ 1,751
CASTOR	35	7.24.15,18	+ 3,857	ARCTURUS	44	14. 8.16,53	+ 2,734
PROCYON	49	7.30.49,07	+ 3,145	λ Virginis	3	14.10.21,28	+ 3,228
κ Geminorum	2	7.34.39,60	+ 3,634	t Bootis	2	14.11.25,93	+ 2,891
POLLUX	48	7.35.23,61	+ 3,684	2 Libræ	2	14.14.43,19	+ 3,211

CATALOGUE OF THE CONCLUDED MEAN RIGHT ASCENSIONS, &c. *continued.*

Name of Star.	Number of Observations.	Mean R.A. Jan. 1, 1838.	Annual Variation.	Name of Star.	Number of Observations.	Mean R.A. Jan. 1, 1838.	Annual Variation.
		h. m. s.	*s.*			*h. m. s.*	*s.*
A.S.C. 1633	4	14 . 15 . 34,96	+ 3,399	3 Sagittarii	5	17 . 37 . 22,15	+ 3,768
10 Hydræ Con.	1	14 . 36 . 38,29	+ 3,455	A.S.C. 2047	4	17 . 40 . 47,38	+ 3,852
ε BOOTIS	34	14 . 37 . 54,74	+ 2,623	γ^2 Sagittarii	2	17 . 55 . 24,28	+ 3,852
11 Hydræ Con.	4	14 . 37 . 58,24	+ 3,462	A.S.C. 2083	4	17 . 57 . 27,69	+ 3,593
A.S.C. 1673	2	14 . 38 . 1,92	+ 3,387	δ Sagittarii	5	18 . 10 . 37,49	+ 3,835
13 Hydræ Con.	3	14 . 38 . 29,98	+ 3,481	s^2 Clypei Sobieski	1	18 . 24 . 23,86	+ 3,423
α^2 LIBRÆ	37	14 . 41 . 55,75	+ 3,309	δ URSÆ MINORIS	42	18 . 24 . 34,08	− 19,214
A.S.C. 1690	3	14 . 48 . 1,33	+ 3,404	* N.P.D. 107°. 20′	3	18 . 27 . 17,49	+ 3,483
1 Serpentis	3	14 . 49 . 15,37	+ 3,060	A.S.C. 2151	3	18 . 28 . 28,02	+ 3,483
A.S.C. 1698	4	14 . 49 . 38,56	+ 2,792	φ Sagittarii	2	18 . 35 . 32,13	+ 3,745
20 Libræ	2	14 . 54 . 36,30	+ 3,490	σ Sagittarii	2	18 . 45 . 13,06	+ 3,722
A.S.C. 1709	3	14 . 56 . 48,71	+ 3,456	τ Sagittarii	4	18 . 56 . 49,41	+ 3,755
A.S.C. 1720	1	15 . 1 . 32,23	+ 2,610	h^2 Sagittarii	3	19 . 26 . 50,68	+ 3,654
ι^1 Libræ	1	15 . 3 . 0,14	+ 3,400	α AQUILÆ	61	19 . 42 . 52,77	+ 2,926
A.S.C. 1752	4	15 . 21 . 1,91	+ 3,375	β AQUILÆ	41	19 . 47 . 21,38	+ 2,945
A.S.C. 1769	4	15 . 27 . 46,35	+ 3,574	c Sagittarii	4	19 . 52 . 41,22	+ 3,700
α CORONÆ BOREALIS	35	15 . 27 . 49,87	+ 2,528	α^2 CAPRICORNI	28	20 . 9 . 3,74	+ 3,332
A^1 Serpentis	3	15 . 28 . 15,37	+ 3,068	*f* Capricorni	1	20 . 20 . 0,46	+ 3,532
χ Libræ	1	15 . 30 . 43,10	+ 3,524	ψ Capricorni	2	20 . 36 . 29,69	+ 3,572
α SERPENTIS	29	15 . 36 . 17,67	+ 2,939	η Capricorni	4	20 . 55 . 10,69	+ 3,430
f^1 Scorpii	1	15 . 44 . 14,14	+ 3,561	* N.P.D. 25°. 2′	3	21 . 2 . 38,15	+ 1,068
A.S.C. 1817	1	15 . 47 . 26,48	+ 2,643	6 Cephei	3	21 . 15 . 59,98	+ 1,257
δ Scorpii	3	15 . 50 . 46,13	+ 3,527	ζ Capricorni	1	21 . 17 . 24,41	+ 3,441
A.S.C. 1848	2	16 . 0 . 59,03	+ 3,709	β AQUARII	28	21 . 23 . 1,68	+ 3,163
c^2 Scorpii	2	16 . 2 . 20,25	+ 3,673	γ Capricorni	3	21 . 31 . 6,37	+ 3,322
δ OPHIUCHI	10	16 . 5 . 51,67	+ 3,138	κ Capricorni	5	21 . 33 . 36,23	+ 3,353
p Scorpii	2	16 . 9 . 18,75	+ 3,764	δ Capricorni	5	21 . 38 . 5,55	+ 3,304
ANTARES	16	16 . 19 . 29,31	+ 3,663	α AQUARII	25	21 . 57 . 27,79	+ 3,083
i Scorpii	1	16 . 20 . 22,68	+ 3,626	ι Aquarii	3	21 . 57 . 40,93	+ 3,247
τ Scorpii	2	16 . 25 . 48,64	+ 3,715	σ Aquarii	4	22 . 22 . 4,17	+ 3,182
25 Scorpii	3	16 . 36 . 56,85	+ 3,656	* N.P.D. 24°. 11′	4	22 . 33 . 37,17	+ 1,973
ε Ursæ Minoris	3	17 . 2 . 48,64	− 6,556	* N.P.D. 24°. 20′	1	22 . 35 . 21,72	+ 2,001
29 Scorpii	2	17 . 4 . 9,49	+ 3,722	λ Aquarii	3	22 . 44 . 9,63	+ 3,133
A Ophiuchi (preceding.)	4	17 . 5 . 23,58	+ 3,671	α PEGASI	58	22 . 56 . 41,80	+ 2,977
				φ Aquarii	3	23 . 5 . 55,85	+ 3,106
30 Scorpii	4	17 . 6 . 16,37	+ 3,671	κ^1 Piscium	4	23 . 18 . 37,74	+ 3,067
α HERCULIS	25	17 . 7 . 15,85	+ 2,732	*n* Piscium	1	23 . 39 . 36,98	+ 3,076
A.S.C. 1974	2	17 . 8 . 13,83	+ 3,644	*q* Piscium	2	23 . 53 . 31,41	+ 3,071
A.S.C. 1979	1	17 . 10 . 27,95	+ 3,481	* N.P.D. 25°. 26′	1	23 . 53 . 36,82	+ 2,989
θ Ophiuchi	3	17 . 12 . 4,12	+ 3,672	* N.P.D. 26°. 7′	1	23 . 56 . 51,23	+ 3,031
d Ophiuchi	3	17 . 17 . 0,99	+ 3,817	* N.P.D. 26°. 42′	1	23 . 58 . 4,30	+ 3,046
α OPHIUCHI	46	17 . 27 . 25,07	+ 2,773				

ZENITH DISTANCES

OBSERVED WITH THE MURAL CIRCLE,

AND

CALCULATION

OF

GEOCENTRIC NORTH POLAR DISTANCES.

1838.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Jan. 2	(a) ☽ S.L.	29. 0	1.41,8	40,6	44,1	44,7	45,8	41,8		− 9,40	29. 1.33,83	G.
	☽ S.L. M.	29. 0	1.41,8	40,6	44,1	44,7	45,8	41,8	10,305	− 3,77 − 4,70	29. 1.34,76	G.
	☽ S.L. M.	29. 0	1.41,8	40,6	44,1	44,7	45,8	41,8	10,548	− 8,78	29. 1.34,45	G.
	☽ S.L. M.	29. 0	1.41,8	40,6	44,1	44,7	45,8	41,8	10,783	− 13,63 + 4,70	29. 1.34,30	G.
	☽ S.L. M.	29. 0	1.41,8	40,6	44,1	44,7	45,8	41,8	10,959	− 17,18 + 9,40	29. 1.35,45	G.
	(b) γ Cassiopeiæ R. M.	164.15	3.18,0	18,5	21,9	21,6	20,1	19,5	15,557	−1.53,23	164.16.26,90	G.
	γ Cassiopeiæ	329. 0	1.19,5	16,8	20,0	22,0	20,5	19,1			329. 1.19,73	G.
	ε Piscium	21.45	4.45,0	45,0	47,2	45,5	45,4	44,1			21.49.45,65	G.
	Polaris R. M.	192.50	4.11,5	12,2	15,8	15,5	14,8	11,0	15,478	−1.51,59	192.52.22,13	G.
	Polaris	300.25	0.23,2	20,3	22,8	24,9	21,8	22,7			300.25.22,63	G.
Jan. 3	⊙ N.L. M.	51.25	2.20,0	20,0	21,7	19,5	20,8	19,8	22,120	−4.10,08	51.23.10,35	G.
	⊙ S.L.	51.55	0.36,1	35,4	38,2	37,3	38,0	36,8			51.55.37,00	G.
	α Cygni R. M.	149. 5	3.21,0	19,9	23,8	21,8	21,3	20,3	10,000	+ 2,66	149. 8.24,21	G.
	α Cygni	344. 5	4.21,8	20,7	24,5	24,8	23,8	21,3			344. 9.23,08	G.
	Venus S.L.	41. 0	2.59,0	58,9	62,3	59,7	60,4	57,0			41. 2.59,73	G.
	α Cassiopeiæ R. M.	160. 5	0.15,2	14,8	19,0	18,4	17,8	17,0	10,689	− 11,72	160. 5. 5,33	G.
	α Cassiopeiæ	333.10	2.40,0	38,2	42,5	44,0	42,0	41,8			333.12.41,58	G.
	γ Cassiopeiæ R. M.	164.15	1.15,3	14,9	18,8	18,5	16,2	17,0	9,630	+ 10,36	164.16.27,23	G.
	γ Cassiopeiæ	329. 0	1.19,5	16,5	18,5	22,0	18,9	19,7			329. 1.19,27	G.
	ε Piscium M.	21.45	4.20,0	18,9	19,9	20,7	19,7	19,8	8,908	+ 25,43	21.49.45,51	G.
	Polaris R. M.	192.50	1.14,4	13,2	17,0	17,7	15,4	15,0	6,930	+1. 6,67	192.52.22,20	G.
	Polaris	300.25	0.24,8	21,0	23,8	24,8	21,0	23,7			300.25.23,20	G.
	(a) ☽ S. L.	22.10	4.19,8	19,0	21,7	20,8	20,7	20,3		− 8,98	22.14.11,65	G.
	☽ S.L. M.	22.10	4.19,8	19,0	21,7	20,8	20,7	20,3	10,330	− 4,30 − 4,49	22.14.11,84	G.
	☽ S.L. M.	22.10	4.19,8	19,0	21,7	20,8	20,7	20,3	10,570	− 9,23	22.14.11,40	G.
	☽ S.L. M.	22.10	4.19,8	19,0	21,7	20,8	20,7	20,3	10,801	− 14,01 + 4,49	22.14.11,11	G.
	☽ S.L. M.	22.10	4.19,8	19,0	21,7	20,8	20,7	20,3	10,996	− 17,96 + 8,98	22.14.11,65	G.
	η Piscium	14.20	0.24,0	20,4	23,8	25,0	23,0	23,0			14.20.23,22	G.
	o Piscium	20.30	0.22,2	20,0	23,8	23,4	21,0	21,7			20.30.22,03	G.
	Pallas	51.30	3.45,0	43,8	47,0	46,2	46,3	44,8			51.33.45,75	G.
	(c) Ceres M.	5.45	3.39,8	37,0	42,2	39,4	38,5	38,9	13,344	−1. 7,09	5.47.32,43	G.
	(d) δ Ursæ Min. R. M.	191. 0	1. 6,0	4,4	10,0	9,3	7,3	5,1	11,610	− 30,93	191. 0.36,15	G.
	δ Ursæ Minoris	302.15	2.10,8	9,9	14,0	12,0	9,8	10,0			302.17.11,22	G.
	α Lyræ R. M.	143. 0	3.13,3	13,5	17,3	15,0	16,1	14,2	7,098	+1. 3,17	143. 4.18,27	G.
	α Lyræ	350.10	3.28,0	27,0	32,8	31,2	29,7	29,4			350.13.29,90	G.
Jan. 4	⊙ S.L. M.	50.50	0.24,9	25,1	27,8	26,8	27,4	26,0	12,840	− 56,57	51.49.29,78	G.
	⊙ N.L.	51.15	2. 4,1	4,2	6,4	4,6	5,3	3,2			51.17. 4,77	G.
	(e) ☽ S.L.	15.55	1.26,3	25,7	26,9	27,5	26,8	26,0			15.56.26,62	G.
	☽ S.L. M.	15.55	1.26,3	25,7	26,9	27,5	26,8	26,0	10,354	− 4,69 + 4,12	15.56.26,05	G.
	☽ S.L. M.	15.55	1.26,3	25,7	26,9	27,5	26,8	26,0	10,581	− 9,29 + 8,24	15.56.25,57	G.
	ζ U. Min. SP. R.M.	206. 5	3.13,7	14,1	15,8	14,5	15,8	12,8	11,288	− 24,22	206. 7.50,43	G.
	ζ Ursæ Min. SP.	287. 5	4.56,2	57,0	57,7	58,5	54,0	55,2			287. 9.56,73	G.
	η Draconis SP. R.M.	222.30	1.18,8	18,2	19,5	21,0	18,8	19,3	10,518	− 8,16	222.31.11,19	G.
	η Draconis SP.	270.45	1.35,8	38,3	36,0	38,0	36,3	37,2			270.46.37,03	G.

The runs not having been taken previous to a great fall of Temperature on Jan. 9, those employed from Jan. 2 are the runs found on Dec. 10, 1837, when the Temperature was nearly the same. The coincidences of the Micrometer and fixed wires at the five wires were taken Jan. 9, 23^h.

(a) At the five wires. Very good.
(b) Wind disturbed the mercury.
(c) Another star observed on the fixed wire, it being doubtful at the time which was Ceres.
(d) Exceedingly faint.
(e) At the 3rd, 4th, and 5th wires.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	52 . 22 . 40,68	29,648	45,0	44,2					89 . 8 . 31,52	☽.
	52 . 22 . 41,61								89 . 8 . 32,45	☽.
	52 . 22 . 41,30				1 . 15,75	46 . 29,38		16 . 3,81	89 . 8 . 32,14	☽.
	52 . 22 . 41,15								89 . 8 . 31,99	☽.
	52 . 22 . 42,30								89 . 8 . 33,14	☽.
53,32	– 7 . 37 . 33,75	29,628	44,8	44,1	7,83				30 . 9 . 26,70	γ Cassiopeiæ R.
	– 7 . 37 . 33,42								30 . 9 . 27,03	γ Cassiopeiæ.
	45 . 10 . 52,50				58,77				82 . 58 . 59,55	ε Piscium.
52,38	– 36 . 13 . 28,98				42,81				1 . 32 . 56,49	Polaris R.
	– 36 . 13 . 30,52								1 . 32 . 54,95	Polaris.
	74 . 44 . 17,20	29,514	45,7	46,4	3 . 39,24	8,39		16 . 17,30	112 . 51 . 3,63	☉.
	75 . 16 . 43,85				3 . 37,04	8,41			112 . 51 . 3,46	☉.
53,64	7 . 30 . 28,94	29,534	47,4	47,0	7,64				45 . 17 . 44,86	α Cygni R.
	7 . 30 . 29,93								45 . 17 . 45,85	α Cygni.
	64 . 24 . 6,58	29,550	46,8	46,0	2 . 0,62	12,98	11,533	15,15	102 . 12 . 47,35	Venus.
53,46	– 3 . 26 . 12,18	29,600	43,5	42,4	3,52				34 . 20 . 52,58	α Cassiopeiæ R.
	– 3 . 26 . 11,57								34 . 20 . 53,19	α Cassiopeiæ.
53,25	– 7 . 37 . 34,08				7,85				30 . 9 . 26,35	γ Cassiopeiæ R.
	– 7 . 37 . 33,88								30 . 9 . 26,55	γ Cassiopeiæ.
	45 . 10 . 52,36				58,92				82 . 58 . 59,56	ε Piscium.
52,70	– 36 . 13 . 29,05		43,4	42,1	42,94				1 . 32 . 56,29	Polaris R.
	– 36 . 13 . 29,95								1 . 32 . 55,39	Polaris.
	45 . 35 . 18,50								82 . 26 . 3,61	☽.
	45 . 35 . 18,69								82 . 26 . 3,80	☽.
	45 . 35 . 18,25				59,80	41 . 28,81		15 . 54,16	82 . 26 . 3,36	☽.
	45 . 35 . 17,96								82 . 26 . 3,07	☽.
	45 . 35 . 18,50								82 . 26 . 3,61	☽.
	37 . 41 . 30,07				45,29				75 . 29 . 23,64	η Piscium.
	43 . 51 . 28,88	29,608	42,8	41,8	56,35				81 . 39 . 33,51	ο Piscium.
	74 . 54 . 52,60				3 . 14,43	3,76			112 . 45 . 11,55	Pallas.
	29 . 8 . 39,28	29,690	40,0	38,2	33,06	2,34			66 . 56 . 18,28	Ceres.
53,69	– 34 . 21 . 43,00	29,856	42,0	42,2	40,42				3 . 24 . 44,86	δ Urs. Min. R.
	– 34 . 21 . 41,93								3 . 24 . 45,93	δ Ursæ Minoris.
54,09	13 . 34 . 34,88				14,29				51 . 21 . 57,45	α Lyræ R.
	13 . 34 . 36,75								51 . 21 . 59,32	α Lyræ.
	75 . 10 . 36,63	29,854	42,7	43,5	3 . 39,33	8,41		16 . 17,30	112 . 44 . 58,53	☉.
	74 . 38 . 11,62				3 . 31,50	8,39			112 . 45 . 0,31	☉.
	39 . 17 . 33,47	29,950	42,0	39,6					76 . 13 . 24,09	☽.
	39 . 17 . 32,90				48,77	36 . 22,02		15 . 44,41	76 . 13 . 23,52	☽.
	39 . 17 . 32,42								76 . 13 . 23,04	☽.
53,58	– 49 . 28 . 57,28	29,958	40,0	37,7	1 . 9,99				– 11 . 42 . 58,99	ζ U. Min. SP. R.
	– 49 . 28 . 56,42								– 11 . 42 . 58,13	ζ Urs. Min. SP.
54,11	– 65 . 52 . 18,04			38,7	2 . 12,71				– 28 . 7 . 22,47	η Dracon. SP. R.
	– 65 . 52 . 16,12								– 28 . 7 . 20,55	η Draconis SP.

Coincidence of Micrometer Wire with fixed Wire = $10^{r},121$, $10^{r},124$, $10^{r},127$, $10^{r},129$, $10^{r},135$ at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = + 1″,3.
Adopted Zenith Point = 336° . 38′ . 53″,15.
Assumed Co-latitude = 37° . 47′ . 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Jan. 4	Capella R. M.	150 . 15	0 . 19,3	19,3	21,7	21,7	21,0	19,8	8,647	+ 30,86	150 . 15 . 51,34	G.
	Capella	343 . 0	1 . 54,8	54,3	59,0	57,8	57,3	55,3			343 . 1 . 56,53	G.
	(*a*) α Lyræ R. M.	143 . 5	0 . 10,5	8,4	15,0	11,7	12,3	12,4	12,695	– 53,50 – 0,12	143 . 4 . 18,11	C.
	α Lyræ	350 . 10	3 . 27,6	24,3	30,6	28,4	28,7	26,4		+ 1,08	350 . 13 . 28,95	C.
Jan. 5	(*b*) ⊙ N.L. M.	51 . 15	0 . 24,5	21,7	27,1	24,2	24,3	24,7	24,259	– 4 . 54,70	51 . 10 . 29,73	C.
	⊙ S.L.	51 . 40	2 . 54,2	53,6	57,7	53,9	55,9	53,3			51 . 42 . 54,93	C.
	Venus S.L.	40 . 10	1 . 39,2	38,4	41,3	39,4	40,8	38,6			40 . 11 . 39,72	C.
	(*c*) α Pegasi R. M.	118 . 45	2 . 9,1	8,2	10,0	7,8	7,2	6,8	10,800	– 14,10 – 0,04	118 . 46 . 54,18	C.
	α Pegasi	14 . 30	0 . 53,2	50,7	55,4	52,6	52,9	50,7		+ 0,15	14 . 30 . 52,78	C.
	Polaris R. M.	192 . 50	0 . 43,8	41,8	46,3	45,4	44,4	44,1	5,476 1 . 3 . 7	+ 1 . 36,99 – 0,07	192 . 52 . 21,27	C.
	Polaris	300 . 25	0 . 26,7	21,5	26,7	25,0	22,6	25,1	1 . 5 . 0	+ 0,50	300 . 25 . 25,12	C.
	ψ Arietis	11 . 50	1 . 54,1	52,7	57,4	53,1	53,3	52,6			11 . 51 . 53,98	C.
	π Arietis	12 . 0	3 . 43,1	40,7	46,0	41,7	42,0	41,4			12 . 3 . 42,70	C.
	(*d*) ☽ S.L.	10 . 25	1 . 27,9	25,0	30,3	26,8	26,5	26,7		– 7,11	10 . 26 . 20,17	C.
	☽ S.L. M.	10 . 25	1 . 27,9	25,0	30,3	26,8	26,5	26,7	10,314	– 3,96 – 3,56	10 . 26 . 19,76	C.
	☽ S.L. M.	10 . 25	1 . 27,9	25,0	30,3	26,8	26,5	26,7	10,625	– 10,33 + 3,56	10 . 26 . 20,51	C.
	g Arietis	4 . 40	2 . 36,6	34,6	39,7	36,6	36,7	35,0			4 . 42 . 36,68	C.
	η Tauri	5 . 15	0 . 4,8	2,9	10,0	4,6	5,7	4,6			5 . 15 . 5,43	C.
	(*e*) Ceres	5 . 40	2 . 43,9	42,6	48,6	43,7	44,4	42,6			5 . 42 . 44,47	C.
	(*f*) ζ Draconis SP. R. M.	218 . 30	0 . 45,5	45,6	48,9	46,6	47,4	45,9	13,624	– 1 . 12,92	218 . 29 . 33,78	C.
	(*g*) ζ Draconis SP.	274 . 45	3 . 15,7	16,0	18,6	16,6	15,3	16,4		– 1,34	274 . 48 . 15,29	C.
Jan. 6	(*h*) ☽ S.L.	6 . 0	1 . 14,8	12,9	19,6	14,6	14,8	15,3		– 5,52	6 . 1 . 9,88	C.
	☽ S.L. M.	6 . 0	1 . 14,8	12,9	19,6	14,6	14,8	15,3	10,379	– 5,26	6 . 1 . 10,14	C
	☽ S.L. M.	6 . 0	1 . 14,8	12,9	19,6	14,6	14,8	15,3	10,676	– 11,28 + 5,52	6 . 1 . 9,64	C.
Jan. 11	(*i*) ☽ N.L.	5 . 25	4 . 41,2	40,4	49,0	40,0	45,5	42,3			5 . 29 . 43,15	C.
Jan. 12	(*k*) α Lyræ R. M.	143 . 5	0 . 52,2	53,0	60,6	52,5	57,6	53,8	14,843	– 1 . 38,41 – 0,12	143 . 4 . 16,64	C.
	α Lyræ	350 . 10	3 . 28,0	29,3	36,0	29,6	34,4	28,8		+ 0,12	350 . 13 . 31,97	C.
Jan. 13	(*l*) ⊙ N.L. M.	50 . 0	4 . 24,7	27,1	30,4	22,7	30,8	25,4	15,025	– 1 . 42,21 – 0,19	50 . 2 . 45,52	C.
	⊙ S.L.	50 . 30	5 . 10,0	12,2	17,6	9,5	16,8	11,8		– 0,69	50 . 35 . 13,54	C.
Jan. 14	α Lyræ R. M.	143 . 0	4 . 35,0	37,7	44,1	34,2	41,4	35,8	11,203	– 22,45	143 . 4 . 16,70	C.
	α Lyræ	350 . 10	3 . 29,3	29,7	37,4	30,1	35,4	29,7			350 . 13 . 32,78	C.
Jan. 15	(*m*) ⊙ N.L. M.	49 . 40	3 . 29,6	30,8	35,6	28,2	35,7	30,3	15,660	– 1 . 55,38	49 . 41 . 37,17	C.
	⊙ S.L.	50 . 10	4 . 3,4	5,7	11,3	2,0	10,6	5,0			50 . 14 . 7,32	C.
Jan. 16	(*n*) ⊙ S.L. M.	50 . 0	4 . 18,2	20,2	23,9	16,1	25,3	19,4	14,208	– 1 . 25,10	50 . 2 . 56,45	C.
	⊙ N.L.	49 . 30	0 . 26,6	25,8	32,8	25,0	32,2	28,5			49 . 30 . 28,60	C.
	Capella R. M.	150 . 15	1 . 27,3	26,9	33,4	26,7	31,9	28,6	11,840	– 35,72	150 . 15 . 53,78	C.
	(*g*) Capella	343 . 0	1 . 50,5	50,7	57,9	50,9	55,1	51,9		+ 0,62	343 . 1 . 53,90	C.

Jan. 5, 6^h. Molyneux fast on Hardy $0^m. 35^s$.
Runs taken Jan. 9, 23^h.

(*a*) At 4th wire and comb. Mercury waving. (*b*) Setting too much out. (*c*) At 2nd and 5th wires. Delayed by taking a wrong clamp. (*d*) At 1st, 2nd, and 4th wires. Very uneven edge. (*e*) Bisection not quite satisfactory. (*f*) Mercury waving and star unsteady. (*g*) At 5th wire. (*h*) At 1st, 3rd, and 5th wires. So cloudy the observation is altogether doubtful. (*i*) Very cloudy and doubtful. Small correction for runs. (*k*) At 2nd and 4th wires. Good. (*l*) Cloudy. N.L. at 2nd wire, S.L. at 4¾ intervals, that is, just at the limit of the field. Corrections for change of N.P.D. $-0'',13$ and $+0'',64$. (*m*) Waving and unsteady. (*n*) Limbs faint: misty atmosphere.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N.P.D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
"	° ′ "	Inch.	°	°	′ "	′ "	r	′ "	° ′ "	
53,94	6 . 23 . 1,81	29,976	39,5	37,6	6,70				44 . 10 . 16,79	Capella R.
	6 . 23 . 3,38								44 . 10 . 18,36	Capella.
53,53	13 . 34 . 35,04	30,178	38,4	38,6	14,55				51 . 21 . 57,87	α Lyræ R.
	13 . 34 . 35,80								51 . 21 . 58,63	α Lyræ.
	74 . 31 . 36,58	30,174	38,7	39,0	3 . 34,21	8,39		16 . 17,30	112 . 38 . 27,98	☉.
	75 . 4 . 1,78				3 . 42,11	8,41			112 . 38 . 26,46	☉.
	63 . 32 . 46,57	30,170	40,1	39,8	2 . 0,16	13,21	11,566	15,55	101 . 21 . 26,25	Venus.
53,48	37 . 51 . 58,97	30,182	39,8	38,9	46,78				75 . 39 . 54,03	α Pegasi R.
	37 . 51 . 59,63								75 . 39 . 54,69	α Pegasi.
53,20	– 36 . 13 . 28,12	30,196	39,4	37,3	44,24				1 . 32 . 55,92	Polaris R.
	– 36 . 13 . 28,03								1 . 32 . 56,01	Polaris.
	35 . 13 . 0,83	30,198	36,9	35,0	42,84				73 . 0 . 51,95	ψ Arietis.
	35 . 24 . 49,55				43,15				73 . 12 . 40,98	π Arietis.
	33 . 47 . 27,02		36,8	34,3					70 . 48 . 5,67	☽.
	33 . 47 . 26,61				40,68	31 . 35,38		15 . 34,93	70 . 48 . 5,26	☽.
	33 . 47 . 27,36								70 . 48 . 6,01	☽.
	28 . 3 . 43,53				32,41				65 . 51 . 24,22	g Arietis.
	28 . 36 . 12,28		35,7	33,5	33,21				66 . 23 . 53,77	η Tauri.
	29 . 3 . 51,32		34,6	32,1	33,94	2,32			66 . 51 . 31,22	Ceres.
54,54	– 61 . 50 . 40,63		33,9	32,0	1 . 53,73				– 24 . 5 . 26,08	ζ Dracon. SP. R.
	– 61 . 50 . 37,86								– 24 . 5 . 23,31	ζ Draconis SP.
	29 . 22 . 16,73	30,210	35,1	34,1					66 . 26 . 59,48	☽.
	29 . 22 . 16,99				34,25	27 . 33,85		15 . 25,93	66 . 26 . 59,74	☽.
	29 . 22 . 16,49								66 . 26 . 59,24	☽.
	28 . 50 . 50,00	30,098	25,0	23,4	34,16	26 . 4,32		14 . 50,37	66 . 27 . 18,49	☽.
54,31	13 . 34 . 36,51	30,234	27,3	27,0	14,94				51 . 21 . 59,73	α Lyræ R.
	13 . 34 . 38,82								51 . 22 . 2,04	α Lyræ.
	73 . 23 . 52,37	30,220	27,2	27,0	3 . 24,78	8,34		16 . 16,90	111 . 30 . 33,99	☉.
	73 . 56 . 20,39				3 . 31,89	8,36			111 . 30 . 35,30	☉.
54,74	13 . 34 . 36,45	29,739	25,1	24,1	14,78				51 . 21 . 59,51	α Lyræ R.
	13 . 34 . 39,63								51 . 22 . 2,69	α Lyræ.
	73 . 2 . 44,02	29,218	24,8	25,2	3 . 14,54	8,32		16 . 16,80	111 . 9 . 15,32	☉.
	73 . 35 . 14,17				3 . 21,17	8,34			111 . 9 . 18,48	☉.
	73 . 24 . 3,30	29,830	27,8	27,6	3 . 21,92	8,33		16 . 16,70	110 . 58 . 8,47	☉.
	72 . 51 . 35,45				3 . 15,33	8,31			110 . 58 . 7,45	☉.
53,84	6 . 22 . 59,37	30,028	25,3	24,2	6,91				44 . 10 . 14,56	Capella R.
	6 . 23 . 0,75								44 . 10 . 15,94	Capella.

Coincidence of Micrometer Wire with fixed Wire = 10r,121, 10r,124, 10r,127, 10r,129, 10r,135 at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = + 1″,8. From Jan. 11 = + 7″,2.
Adopted Zenith Point = 336° . 38′ . 53″,15.
Assumed Co-latitude = 37° . 47′ . 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Jan. 17	(a) ⊙ N.L. M.	49 . 15	4 . 31,0	32,4	36,6	29,2	37,2	31,3	12,108	− 41,11	49 . 18 . 52,92	C.
	⊙ S.L.	49 . 50	1 . 16,7	16,7	22,2	15,1	22,1	18,5			49 . 51 . 18,87	C.
Jan. 18	⊙ S.L. M	49 . 40	1 . 36,0	36,2	41,7	34,7	41,4	37,0	16,835	−2 . 19,68	49 39 . 18,54	C.
	⊙ N.L.	49 . 5	1 . 50,1	50,6	57,0	48,6	56,5	50,6			49 . 6 . 52,68	C.
Jan. 19	(b) Venus S.L.	34 . 10	2 . 27,0	28,8	32,0	26,0	30,7	27,8			34 . 12 . 29,00	G.
	(c) α Lyræ R. M.	143 . 0	4 . 17,3	20,2	25,0	16,3	23,0	17,6	10,448	− 6,49	143 . 4 . 13,88	G.
	α Lyræ	350 . 10	3 . 30,2	30,3	39,3	29,8	35,3	30,4			350 . 13 . 32,93	G.
Jan. 20	⊙ S.L. M.	49 . 15	1 . 27,0	29,6	32,0	26,3	31,4	28,7	16,701	−2 . 16,88	49 . 14 . 12,45	G.
	⊙ N.L.	48 . 40	1 . 44,0	46,3	50,2	43,2	48,6	44,3			48 . 41 . 46,30	G.
	Venus S.L.	33 . 45	2 . 34,3	37,3	39,8	32,7	40,2	35,3			33 . 47 . 36,88	G.
	α Arietis R. M.	127 . 5	3 . 10,4	12,2	17,7	8,9	16,0	10,3	9,840	+ 6,20	127 . 8 . 19,13	G.
	α Arietis	6 . 5	4 . 22,4	24,2	29,6	21,1	29,3	23,3			6 . 9 . 25,47	G.
	(d) α Ceti R. M	107 . 50	3 . 19,8	20,7	25,8	19,0	23,8	20,8	7,579	+ 53,34	107 . 54 . 15,36	G.
	α Ceti	25 . 20	3 . 29,0	29,5	35,9	27,3	33,0	30,0			25 . 23 . 31,17	G.
	(e) Ceres	5 . 5	0 . 32,2	31,7	40,7	31,5	37,2	34,8			5 . 5 . 34,75	G.
Jan. 22	(f) Aldebaran R. M.	120 . 35	2 . 11,7	13,0	17,4	12,1	17,9	13,1	9,405	+ 15,26	120 . 37 . 29,74	G.
	Aldebaran	12 . 40	0 . 12,0	9,6	18,3	8,9	17,8	12,3			12 . 40 . 13,17	G.
	(g) Ceres	5 . 0	0 . 20,3	21,0	25,7	17,3	27,4	21,3			5 . 0 . 22,22	G.
	β Tauri R. M	132 . 55	0 . 24,9	25,2	29,4	25,3	30,5	27,8	13,120	−1 . 2,20	132 . 54 . 25,05	G.
	β Tauri	0 . 20	3 . 16,3	17,3	22,5	15,0	22,4	15,5			0 . 23 . 18,58	G.
Jan. 29	(h) ⊙ N.L. M.	46 . 30	2 . 10,8	11,8	15,1	9,3	13,0	12,1	13,903	−1 . 18,82	46 . 30 . 53,48	G.
	⊙ S.L.	47 . 0	3 . 20,8	20,6	24,5	18,3	22,2	20,0			47 . 3 . 21,48	G.
	Venus S.L.	30 . 15	1 . 49,1	52,0	54,9	49,7	53,8	48,7			30 . 16 . 51,60	G.
	α Ceti R. M	107 . 50	3 . 23,0	25,0	28,5	23,3	29,3	24,9	8,015	+ 43,96	107 . 54 . 10,06	G.
	α Ceti	25 . 20	3 . 32,0	35,9	39,3	32,4	39,2	34,0			25 . 23 . 35,92	G.
	α Persei R. M.	153 . 40	3 . 10,5	13,2	18,4	10,8	17,6	12,4	10,617	− 10,29	153 . 43 . 3,93	G.
	α Persei	339 . 30	4 . 38,4	40,7	44,4	38,8	45,3	40,0			339 . 34 . 41,85	G.
	η Tauri R. M.	128 . 0	2 . 16,2	17,5	21,7	15,3	20,2	16,1	9,220	+ 18,83	128 . 2 . 36,96	G.
	η Tauri	5 . 15	0 . 3,2	4,0	10,4	2,5	9,0	4,5			5 . 15 . 5,62	G.
	(i) Aldebaran R. M.	120 . 35	2 . 10,3	11,9	14,9	9,8	15,7	11,2	9,297	+ 17,24	120 . 37 . 29,82	G.
	Aldebaran	12 . 40	0 . 11,6	12,4	18,0	10,5	17,2	12,8			12 . 40 . 13,78	G.
	Ceres	4 . 40	1 . 24,3	23,8	29,3	23,2	29,2	25,0			4 . 41 . 25,98	G.
Feb. 3	(k) ☽ S.L.	3 . 30	0 . 35,5	35,8	41,0	34,4	41,3	35,7			3 . 30 . 37,37	G.
	☽ S.L. M.	3 . 30	0 . 35,5	35,8	41,0	34,4	41,3	35,7	10,300	− 3,55 + 2,03	3 . 30 . 35,85	G.
	☽ S.L. M.	3 . 30	0 . 35,5	35,8	41,0	34,4	41,3	35,7	10,434	− 6,24 + 4,06	3 . 30 . 35,19	G.
	ι Tauri	7 . 25	4 . 48,5	50,2	56,0	48,0	54,0	48,1			7 . 29 . 51,42	G.
	Capella R. M.	150 . 15	1 . 15,7	18,3	22,5	16,9	22,2	17,5	11,354	− 25,68	150 . 15 . 53,34	G.
	Capella	343 . 0	1 . 49,0	50,5	56,0	50,0	53,5	49,9			343 . 1 . 51,72	G.
	β Tauri R. M.	132 . 50	3 . 9,9	12,8	16,0	9,7	15,0	10,0	6,548	+1 . 14,55	132 . 54 . 27,18	G.
	β Tauri	0 . 20	3 . 15,8	16,0	21,8	14,3	19,8	14,5			0 . 23 . 17,45	G.
	δ Orionis R. M.	104 . 0	2 . 14,1	15,0	19,2	14,5	18,7	13,5	11,125	− 20,90	104 . 1 . 55,22	G.
	δ Orionis	29 . 15	0 . 48,8	50,2	55,5	48,0	52,9	50,5			29 . 15 . 51,08	G.
Feb. 4	ι Tauri	7 . 25	4 . 48,9	49,2	56,0	47,8	53,3	48,3			7 . 29 . 51,20	G.
	Capella R. M.	150 . 15	1 . 16,0	18,8	23,1	15,9	22,4	17,7	11,280	− 24,14	150 . 15 . 55,01	G.
	Capella	343 . 0	1 . 49,8	50,2	56,8	49,8	55,3	49,9			343 . 1 . 52,20	G.

Coincidence of wires at middle wire taken Jan. 20, 0h, and at the five wires Feb. 5, 1h.
Runs taken Jan. 20, 0h. (Therm. at 20°) and Feb. 5, 1h. (Therm. at 32°.)

(a) Waving and unsteady. (b) Shutters just opened.
(c) Bad definition.
(d) The Micrometer reading has been diminished 1r.
(e) This night's observing intensely cold. Therm. out of doors at 10h, 11°,0; in circle room, 13°,4. The screw of Microscope D moves very stiffly.
(f) Screw of D still very stiff.
(g) Very doubtful.
(h) Very misty and doubtful.
(i) Too much wind.
(k) At 3rd, 4th, and 5th wires. The first two unsatisfactory; the last good.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.		°	′ ″	′ ″	r	′ ″	° ′ ″	
	72 . 39 . 59,77	30,172	28,7	30,0	3 . 14,29	8,30		16 . 16,60	110 . 46 . 30,64	☉.
	73 . 12 . 25,72				3 . 20,78	8,32			110 . 46 . 29,86	☉.
	73 . 0 . 25,39	29,942	25,5	24,4	3 . 19,20	8,31		16 . 16,50	110 . 34 . 28,06	☉.
	72 . 27 . 59,53				3 . 12,81	8,29			110 . 34 . 28,83	☉.
	57 . 33 . 35,85	29,680	23,8	20,6	1 . 36,55	15,08	11,808	18,22	95 . 21 . 47,38	Venus.
53,41	13 . 34 . 39,27	29,824	20,5	18,3	15,01				51 . 22 . 2,56	α Lyræ R.
	13 . 34 . 39,78								51 . 22 . 3,07	α Lyræ.
	72 . 35 . 19,30	29,802	21,0	21,4	3 . 14,61	8,29		16 . 16,30	110 . 9 . 17,60	☉.
	72 . 2 . 53,15				3 . 8,50	8,27			110 . 9 . 17,96	☉.
	57 . 8 . 43,73	29,804	22,0		1 . 35,30	15,23	11,807	18,22	94 . 56 . 53,86	Venus.
52,30	29 . 30 . 34,02	29,806	19,6	17,0	35,24				67 . 18 . 17,54	α Arietis R.
	29 . 30 . 32,32								67 . 18 . 15,84	α Arietis.
53,27	48 . 44 . 37,79	29,832	19,3	16,2	1 . 11,10				86 . 32 . 57,17	α Ceti R.
	48 . 44 . 38,02								86 . 32 . 57,40	α Ceti.
	28 . 26 . 41,60	29,844	17,5	14,7	33,95	2,13			66 . 14 . 21,70	Ceres.
51,46	36 . 1 . 23,41	29,642	32,8	34,5	43,38				73 . 49 . 15,07	Aldebaran R.
	36 . 1 . 20,02								73 . 49 . 11,68	Aldebaran.
	28 . 21 . 29,07				32,21	2,10			66 . 9 . 7,46	Ceres.
51,82	23 . 44 . 28,10				26,25				61 . 32 . 2,63	β Tauri R.
	23 . 44 . 25,43								61 . 31 . 59,96	β Tauri.
	69 . 52 . 0,33	29,376	34,5	37,8	2 . 38,92	8,15		16 . 15,20	107 . 57 . 54,58	☉.
	70 . 24 . 28,33				2 . 43,60	8,18			107 . 57 . 56,83	☉.
	53 . 37 . 58,45	29,406	40,3	41,6	1 . 19,07	16,73	11,970	20,36	91 . 25 . 48,71	Venus.
52,99	48 . 44 . 43,09	29,446	37,3	37,1	1 . 7,13				86 . 32 . 58,50	α Ceti R.
	48 . 44 . 42,77								86 . 32 . 58,18	α Ceti.
52,89	2 . 55 . 49,22				3,02				40 . 43 . 0,52	α Persei R.
	2 . 55 . 48,70								40 . 43 . 0,00	α Persei.
51,29	28 . 36 . 16,19		37,0	36,7	32,17				66 . 23 . 56,64	η Tauri R.
	28 . 36 . 12,47								66 . 23 . 52,92	η Tauri.
51,80	36 . 1 . 23,33	29,450	36,5	36,0	42,96				73 . 49 . 14,57	Aldebaran R.
	36 . 1 . 20,63								73 . 49 . 11,87	Aldebaran.
	28 . 2 . 32,83				31,48	2,00			65 . 50 . 10,59	Ceres.
	26 . 51 . 44,22	30,268	31,7	30,7					63 . 58 . 51,00	☽.
	26 . 51 . 42,70				31,10	25 . 12,72		15 . 19,88	63 . 58 . 49,48	☽.
	26 . 51 . 42,04								63 . 58 . 48,82	☽.
	30 . 50 . 58,27			30,3	36,70				68 . 38 . 43,25	ι Tauri.
52,53	6 . 22 . 59,81				6,88				44 . 10 . 14,97	Capella R.
	6 . 22 . 58,57								44 . 10 . 13,73	Capella.
52,32	23 . 44 . 25,97				27,03				61 . 32 . 1,28	β Tauri R.
	23 . 44 . 24,30								61 . 31 . 59,61	β Tauri.
53,15	52 . 36 . 57,93				1 . 20,30				90 . 25 . 26,51	δ Orionis R.
	52 . 36 . 57,93								90 . 25 . 26,51	δ Orionis.
	30 . 50 . 58,81	30,240	27,2	25,9	37,02				68 . 38 . 44,11	ι Tauri.
53,61	6 . 22 . 57,38				6,94				44 . 10 . 12,60	Capella R.
	6 . 22 . 59,81								44 . 10 . 15,03	Capella.

Coincidence of Micrometer Wire with fixed Wire from Jan. 17 = $10^{r},137$ at middle Wire. From Jan. 29 = $10^{r},120$, $10^{r},120$, $10^{r},123$, $10^{r},130$, $10^{r},135$ at the five wires.

One Micrometer Revolution = 20″,855.

Correction for Runs = + 7″,2. From Jan. 19 = + 3″,3. From Jan. 22 = + 3″,8.

Adopted Zenith Point = 336°. 38′. 53″,15. From Feb. 4 = 336°. 38′. 52″,39.

Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Feb. 4	β Tauri R. M......	132 . 50	3 . 20,0	20,1	25,8	17,6	23,9	18,5	6,922	+1 . 6,75	132 . 54 . 28,15	G.
	β Tauri..........	0 . 20	3 . 16,4	14,3	22,4	13,8	18,7	14,5			0 . 23 . 17,10	G.
	(a) ☽ S.L. M.........	1 . 30	4 . 37,9	36,0	45,0	35,0	41,0	36,0	17,240	−2 . 28,48 − 1,74	1 . 32 . 8,85	G.
	☽ S.L. M.........	1 . 30	4 . 37,9	36,0	45,0	35,0	41,0	36,0	17,307	−2 . 29,88 − 0,87	1 . 32 . 8,32	G.
	☽ N.L.............	1 . 0	1 . 22,0	19,0	27,0	18,8	23,8	20,8			1 . 1 . 22,07	G.
	☽ N.L. M..........	1 . 0	1 . 22,0	19,0	27,0	18,8	23,8	20,8	10,188	− 1,21 + 0,87	1 . 1 . 21,73	G.
	☽ N.L. M..........	1 . 0	1 . 22,0	19,0	27,0	18,8	23,8	20,8	10,228	− 1,93 + 1,74	1 . 1 . 21,88	G.
	C Tauri..........	1 . 15	2 . 6,1	3,5	12,3	2,0	7,6	4,0			1 . 17 . 6,18	G.
	κ Aurigæ..........	359 . 15	3 . 7,2	4,8	13,9	3,5	8,4	4,9			359 . 18 . 7,52	G.
	α Lyræ R. M......	143 . 0	4 . 25,8	29,0	32,9	26,0	32,0	26,3	11,112	− 20,63	143 . 4 . 8,60	G.
	α Lyræ...........	350 . 10	3 . 34,7	35,8	41,8	34,9	38,8	33,8			350 . 13 . 37,08	G.
Feb. 5	Saturn N.L.......	46 . 25	4 . 8,3	10,5	14,7	7,1	13,2	9,0			46 . 29 . 10,98	G.
	α Lyræ R. M......	143 . 0	4 . 15,8	18,2	23,3	14,6	20,2	16,0	10,647	− 10,93	143 . 4 . 7,64	G.
	α Lyræ...........	350 . 10	3 . 35,3	35,2	41,8	34,0	38,9	33,8			350 . 13 . 36,95	G.
Feb. 6	(b) ☉ S.L. M.........	44 . 40	4 . 27,2	30,8	32,0	25,4	32,7	27,7	8,934	+ 24,80	44 . 44 . 54,67	G.
	☉ N.L.............	44 . 10	2 . 28,0	30,9	31,8	26,8	32,7	28,3			44 . 12 . 30,07	G.
	Venus S.L........	27 . 40	1 . 28,9	29,8	32,8	28,0	34,5	29,8			27 . 41 . 30,82	G.
	(c) A.S.C. 271........	4 . 50	4 . 43,8	44,0	50,3	41,7	48,2	41,9			4 . 54 . 45,58	G.
	ζ U. Min. SP. R. M.	206 . 5	3 . 20,2	19,8	23,4	18,0	23,4	19,5	11,350	− 25,60	206 . 7 . 55,53	G.
	ζ Ursæ Min. SP...	287 . 5	4 . 45,8	46,5	50,4	46,7	49,1	46,0			287 . 9 . 48,02	G.
	80 Tauri.........	13 . 30	4 . 9,5	10,3	15,3	7,9	14,9	8,8			13 . 34 . 11,65	G.
	Ceres............	4 . 15	3 . 25,8	25,8	32,0	24,8	30,4	25,2			4 . 18 . 27,77	G.
	120 Tauri........	10 . 25	0 . 49,3	48,0	55,0	48,7	52,9	49,0			10 . 25 . 50,58	G.
	ϕ^2 Orionis........	19 . 35	3 . 53,3	53,2	61,0	52,2	59,2	52,2			19 . 38 . 55,68	G.
Feb. 8	(d) Ceres............	4 . 10	2 . 31,0	30,0	35,2	30,4	35,0	31,2			4 . 12 . 32,45	G.
	(e) ☽ N.L............	8 . 0	1 . 25,5	23,5	28,6	25,4	27,8	25,4		+ 6,06	8 . 1 . 32,28	G.
Feb. 9	(f) λ Leonis..	5 . 10	0 . 29,7	26,5	32,8	27,8	32,5	30,5			5 . 10 . 30,03	G.
	ψ Leonis.........	14 . 5	0 . 26,9	25,0	30,3	25,4	30,0	26,5			14 . 5 . 27,42	G.
	(g) ☽ S.L. M.........	13 . 5	3 . 17,7	15,3	20,5	14,8	20,7	15,8	18,282	−2 . 50,21 + 6,98	13 . 5 . 34,65	G.
	☽ S.L. M.........	13 . 5	3 . 17,7	15,3	20,5	14,8	20,7	15,8	18,146	−2 . 47,39 + 3,49	13 . 5 . 33,98	G.
	☽ N.L.............	12 . 35	0 . 39,7	37,3	43,2	37,7	42,6	39,1			12 . 35 . 49,02	G.
	☽ N.L. M..........	12 . 35	0 . 39,7	37,3	43,2	37,7	42,6	39,1	9,950	+ 3,75 − 3,49	12 . 35 . 40,28	G.
	☽ N.L. M..........	12 . 35	0 . 39,7	37,3	43,2	37,7	42,6	39,1	9,836	+ 6,24 − 6,98	12 . 35 . 39,28	G.
	γ Leonis.........	8 . 10	1 . 41,5	40,5	46,0	41,0	46,1	40,5			8 . 11 . 42,82	G.
	ρ Leonis.........	18 . 40	2 . 38,8	38,0	43,3	36,0	40,9	37,8			18 . 42 . 39,47	G.
Feb. 10	γ Leonis.........	8 . 10	1 . 40,2	39,3	45,4	39,3	42,8	40,5			8 . 11 . 41,58	G.
	ρ Leonis.........	18 . 40	2 . 38,1	36,8	44,0	35,0	39,2	37,0			18 . 42 . 38,87	G.

(a) At the five wires. Dazzlingly bright: observations pretty good. Both limbs were found hy calculation to be fully illumined.

(b) Badly defined.

(c) This follows by 2^s another star not so bright, and of exactly the same declination.

(d) The observation as set down has been altered 5′ by comparison with the Tables.

(e) At 1st wire: the others cloudy.

(f) Before this observation, Microscope D was taken down and its screw cleaned, and it now moves easily. It was put up in exactly the same position.

(g) At the five wires. S.L. rough: correction applied to it for defect of illumination =+0″,49.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
52,63	23 . 44 . 24,24	30,240	27,2	25,9	27,26				61 . 31 . 59,78	β Tauri R.
	23 . 44 . 24,71								61 . 32 . 0,25	β Tauri.
	24 . 53 . 16,46	30,230	27,0	25,2	28,79	23 . 12,84			62 . 2 . 30,81	☽.
	24 . 53 . 15,93								62 . 2 . 30,28	☽.
	24 . 22 . 29,68							15 . 9,88	62 . 2 . 30,33	☽.
	24 . 22 . 29,34				28,12	22 . 45,63			62 . 2 . 29,99	☽.
	24 . 22 . 29,49								62 . 2 . 30,14	☽.
	24 . 38 . 13,79			25,0	28,47				62 . 25 . 50,54	C Tauri.
	22 . 39 . 15,13				25,91				60 . 26 . 49,32	κ Aurigæ.
52,84	13 . 34 . 43,79	30,212	30,6	30,6	14,81				51 . 22 . 6,88	α Lyræ R.
	13 . 34 . 44,69								51 . 22 . 7,78	α Lyræ.
	69 . 50 . 18,59	30,028	32,8	31,6	2 . 44,28	0,80	9,314	8,44	107 . 40 . 18,79	Saturn.
52,30	13 . 34 . 44,75	29,950	31,5	30,8	14,68				51 . 22 . 7,71	α Lyræ R.
	13 . 34 . 44,56								51 . 22 . 7,52	α Lyræ.
	68 . 6 . 2,28	29,900	33,8	36,0	2 . 28,28	8,04		16 . 14,00	105 . 39 . 16,80	⊙.
	67 . 33 . 37,68				2 . 24,38	8,01			105 . 39 . 16,33	⊙.
	51 . 2 . 38,43	29,832	35,3	36,4	1 . 13,87	18,31	12,214	23,37	88 . 50 . 18,90	Venus.
	28 . 15 . 53,19	29,766	33,2	32,1	32,37				66 . 3 . 33,84	A.S.C. 271.
51,78	− 49 . 29 . 3,14	29,740	32,0	31,0	1 . 10,48				− 11 . 43 . 5,34	ζ U. Min. SP. R.
	− 49 . 29 . 4,37								− 11 . 43 . 6,57	ζ Ursæ Min. SP.
	36 . 55 . 19,26	29,720	31,8	30,8	45,28				74 . 43 . 12,82	80 Tauri.
	27 . 39 . 35,38				31,60	1,89			65 . 27 . 13,37	Ceres.
	33 . 46 . 58,19	29,710	31,7	29,9	40,38				71 . 34 . 46,85	120 Tauri.
	43 . 0 . 3,29				56,26				80 . 48 . 7,83	ϕ^2 Orionis.
	27 . 33 . 40,06	28,814	40,7	40,0	29,93	1,87			65 . 21 . 16,40	Ceres.
	31 . 22 . 39,89	28,764	40,8	40,7	34,86	27 . 59,70		14 . 45,41	68 . 57 . 8,74	☽.
	28 . 31 . 37,64	28,966	35,7	34,0	31,72				66 . 19 . 17,64	λ Leonis.
	37 . 26 . 35,03				44,67				75 . 14 . 27,98	ψ Leonis.
	36 . 26 . 42,26	28,974	35,5	33,9	43,11	31 . 52,73			73 . 27 . 58,56	☽.
	36 . 26 . 41,59								73 . 27 . 57,89	☽.
	35 . 56 . 47,63							14 . 42,85	73 . 27 . 51,21	☽.
	35 . 56 . 47,89				42,33	31 . 29,88			73 . 27 . 51,47	☽.
	35 . 56 . 46,89								73 . 27 . 50,47	☽.
	31 . 32 . 50,43				35,85				69 . 20 . 34,56	γ Leonis.
	42 . 3 . 47,08				52,66				79 . 51 . 48,02	ρ Leonis.
	31 . 32 . 49,19	28,994	30,7	29,3	36,22				69 . 20 . 33,69	γ Leonis.
	42 . 3 . 46,48				53,21				79 . 51 . 47,97	ρ Leonis.

Coincidence of Micrometer Wire with fixed Wire = 10ʳ,120, 10ʳ,120, 10ʳ,123, 10ʳ,130, 10ʳ,135 at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = + 3″,8.
Adopted Zenith Point = 336° . 38′ . 52″,39.
Assumed Co-latitude = 37° . 47′ . 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Feb. 10	(*a*) ☽ S.L.	18.15	2.26,6	23,2	31,4	23,2	25,8	25,3		+7,54	18.17.33,94	G.
	☽ S.L. M	18.15	2.26,6	23,2	31,4	23,2	25,8	25,3	9,950	+3,55 +3,77	18.17.33,72	G.
	☽ S.L. M.	18.15	2.26,6	23,2	31,4	23,2	25,8	25,3	9,791	+6,92	18.17.33,32	G.
	☽ S.L. M.	18.15	2.26,6	23,2	31,4	23,2	25,8	25,3	9,622	+10,59 −3,77	18.17.33,22	G.
	☽ S.L. M.	18.15	2.26,6	23,2	31,4	23,2	25,8	25,3	9,432	+14,66 −7,54	18.17.33,52	G.
	α Ursæ Maj. R. M.	167. 0	3.16,4	16,0	23,0	13,7	18,6	15,2	10,550	−8,91	167. 3. 8,91	G.
	α Ursæ Majoris	326.10	4.37,3	35,0	41,6	35,0	38,4	35,0			326.14.37,97	G.
	χ Leonis	20.35	3.15,4	14,3	21,0	13,6	16,4	14,5			20.38.16,53	G.
	Jupiter S.L	22.10	3.57,8	56,6	63,0	53,9	59,0	56,0			22.13.58,50	G.
	ι Leonis	17.25	0.46,0	43,8	51,0	43,1	45,7	43,8			17.25.45,72	G.
Feb. 11	χ Leonis	20.35	3.14,3	12,8	20,5	12,3	17,3	13,3			20.38.15,72	G.
	Jupiter N.L.	22.10	0.31,1	29,0	34,2	27,8	32,8	31,3			22.10.31,13	G.
	ι Leonis	17.25	0.45,1	42,3	50,6	42,7	47,8	43,0			17.25.45,40	G.
	(*b*) ☽ S.L	23.50	3.61,0	60,0	66,7	57,1	62,5	58,0		+7,86	23.54. 9,54	G.
	☽ S.L. M.	23.50	3.61,0	60,0	66,7	57,1	62,5	58,0	9,942	+3,72 +3,93	23.54. 9,33	G.
	☽ S.L. M.	23.50	3.61,0	60,0	66,7	57,1	62,5	58,0	9,790	+6,94	23.54. 8,62	G.
	☽ S.L. M.	23.50	3.61,0	60,0	66,7	57,1	62,5	58,0	9,648	+10,04 −3,93	23.54. 7,79	G.
	☽ S.L. M.	23.50	3.61,0	60,0	66,7	57,1	62,5	58,0	9,410	+15,12 −7,86	23.54. 8,94	G.
	α Aquilæ R. M.	112.50	2.21,8	19,8	24,9	17,1	21,3	19,0	6,920	+1. 6,79	112.53.27,91	G.
	α Aquilæ	20.20	4.17,6	17,8	23,0	13,8	20,5	15,5			20.24.18,90	G.
	Mercury, center	49. 5	1.19,3	18,4	24,0	16,4	21,5	18,8			49. 6.20,00	G.
Feb. 12	☉ S.L. M.	42.45	4.19,4	20,7	23,7	16,3	23,6	17,6	8,878	+25,96	42.49.47,04	G.
	☉ N.L.	42.15	2.22,8	21,8	27,2	19,4	26,5	21,6			42.17.23,68	G.
	(*c*) Venus S.L.	26.15	2. 9,8	10,2	15,2	7,4	14,0	8,7			26.17.11,32	G.
	F Eridani	46.45	4.31,4	31,0	36,0	29,0	34,8	30,9			46.49.33,08	G.
	η Tauri R. M.	128. 0	2.13,2	13,2	16,8	10,8	13,5	11,8	8,950	+24,47	128. 2.38,12	G.
	η Tauri	5.15	0. 5,5	2,8	11,5	4,3	8,5	5,5			5.15. 6,37	G.
	ζ Ursæ Min. SP. R. M.	206. 5	3.12,6	12,5	16,3	10,0	14,5	12,0	10,928	−16,78	206. 7.56,84	G.
	ζ Ursæ Minoris SP.	287. 5	4.45,3	46,2	50,0	44,8	46,1	45,3			287. 9.47,23	G.
	80 Tauri	13.30	4. 9,4	9,2	15,9	7,8	11,8	8,1			13.34.11,20	G.
	Aldebaran R. M.	120.35	2.13,8	12,9	17,8	12,4	14,7	12,1	9,378	+15,53	120.37.29,91	G.
	Aldebaran	12.40	0.13,4	11,5	18,4	11,8	17,1	13,0			12.40.14,23	G.
	ζ Draconis SP. R. M.	218.25	4.14,3	13,4	18,2	10,8	17,0	13,5	8,748	+28,68	218.29.44,06	G.
	ζ Draconis SP.	274.45	2.59,4	59,3	63,6	58,2	59,7	58,2			274.48. 0,33	G.
	120 Tauri	10.25	0.51,2	49,8	56,9	50,0	52,8	50,8			10.25.52,08	G.
	ϕ^2 Orionis	19.35	3.55,8	55,0	62,2	53,2	59,2	54,3			19.38.57,40	G.
	d Orionis	36. 5	3.33,2	33,2	38,7	30,0	35,8	33,2			36. 8.34,73	G.
	A.S.C. 721	14.50	1.11,3	10,2	16,7	10,3	13,7	11,0			14.51.12,43	G.
	δ Ursæ Min. SP. R. M.	197.50	0.19,5	18,5	24,2	18,4	23,4	19,7	10,865	−15,47	197.50. 5,21	G.
	δ Ursæ Minoris SP.	295.25	2.39,6	38,0	43,3	36,2	39,7	37,0			295.27.39,48	G.
	(*d*) α Aquilæ R. M.	112.50	3. 9,5	7,8	14,8	4,5	10,8	6,0	9,385	+15,39	112.53.24,92	G.
	α Aquilæ	20.20	4.17,8	17,8	23,7	14,0	19,8	15,5			20.24.18,97	G.
	Mercury, center	49. 0	4.22,0	21,7	27,5	18,3	26,8	20,8			49. 4.23,72	G.

Runs taken Feb. 13, 1ʰ. (Therm. 29°.)

(*a*) At the five wires. Uneven.
(*b*) At the five wires.
(*c*) Very unsteady.
(*d*) Faint and unsteady.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	41 . 38 . 41,55	28,994	30,5	29,1					78 . 36 . 21,68	☽.
	41 . 38 . 41,33								78 . 36 . 21,46	☽.
	41 . 38 . 40,93				52,46	35 . 38,73		14 . 1,88	78 . 36 . 21,06	☽.
	41 . 38 . 40,83								78 . 36 . 20,96	☽.
	41 . 38 . 41,13								78 . 36 . 21,26	☽.
53,44	- 10 . 24 . 16,52				10,84				27 . 22 . 40,92	α Ursæ. Maj. R.
	- 10 . 24 . 14,42								27 . 22 . 43,02	α Ursæ Majoris.
	43 . 59 . 24,14				56,94				81 . 47 . 29,36	χ Leonis.
	45 . 35 . 6,11				1 . 0,20	1,35	12,158	21,22	83 . 22 . 52,02	Jupiter.
	40 . 46 . 53,33				50,89				78 . 34 . 52,50	ι Leonis.
	43 . 59 . 23,33	29,448	30,0	27,8	57,98				81 . 47 . 29,59	χ Leonis.
	45 . 31 . 38,74				1 . 1,18	1,35	8,091	21,19	83 . 20 . 8,04	Jupiter.
	40 . 46 . 53,01				51,83				78 . 34 . 53,12	ι Leonis.
	47 . 15 . 17,15								84 . 9 . 21,39	☽.
	47 . 15 . 16,94								84 . 9 . 21,18	☽.
	47 . 15 . 16,23				1 . 4,98	39 . 26,61		14 . 42,41	84 . 9 . 20,47	☽.
	47 . 15 . 15,40								84 . 9 . 19,64	☽.
	47 . 15 . 16,55								84 . 9 . 20,79	☽.
53,41	43 . 45 . 24,48	29,480	31,7	29,5	57,37				81 . 33 . 30,13	α Aquilæ R.
	43 . 45 . 26,51								81 . 33 . 32,16	α Aquilæ.
	72 . 27 . 27,61				3 . 7,65	8,40			110 . 17 . 35,14	Mercury.
	66 . 10 . 54,65	29,486	32,5	33,1	2 . 14,12	7,92		16 . 12,90	103 . 43 . 56,23	☉.
	65 . 38 . 31,29				2 . 10,81	7,89			103 . 43 . 55,39	☉.
	49 . 38 . 18,93	29,478	33,4	33,5	1 . 9,88	19,64	12,298	24,79	87 . 25 . 52,66	Venus.
	70 . 10 . 40,69	29,450	32,6	31,5	2 . 44,12				108 . 0 . 33,09	F Eridani.
52,24	28 . 36 . 14,27				32,53				66 . 23 . 55,08	η Tauri R.
	28 . 36 . 13,98								66 . 23 . 54,79	η Tauri.
52,04	- 49 . 29 . 4,45				1 . 9,72				- 11 . 43 . 5,89	ζ U. Min. SP. R.
	- 49 . 29 . 5,16								- 11 . 43 . 6,60	ζ Ursæ Min. SP.
	36 . 55 . 18,81				44,81				74 . 43 . 11,90	80 Tauri.
52,07	36 . 1 . 22,48				43,36				73 . 49 . 14,12	Aldebaran R.
	36 . 1 . 21,84								73 . 49 . 13,48	Aldebaran.
52,20	- 61 . 50 . 51,67	29,442	32,1	30,7	1 . 51,23				- 24 . 5 . 34,62	ζ Dracon. SP. R.
	- 61 . 50 . 52,06								- 24 . 5 . 35,01	ζ Draconis SP.
	33 . 46 . 59,69				39,96				71 . 34 . 47,93	120 Tauri.
	43 . 0 . 5,01				55,67				80 . 48 . 8,96	ϕ^2 Orionis.
	59 . 29 . 42,34				1 . 41,09				97 . 18 . 31,71	*d* Orionis.
	38 . 12 . 20,04				47,00				76 . 0 . 15,32	A.S.C. 721.
52,35	- 41 . 11 . 12,82		31,5	30,3	52,28				- 3 . 24 . 56,82	δ U. Min. SP. R.
	- 41 . 11 . 12,91								- 3 . 24 . 56,91	δ Ursæ Min. SP.
51,95	43 . 45 . 27,47	29,460	30,4	28,7	57,43				81 . 33 . 33,18	α Aquilæ R.
	43 . 45 . 26,58								81 . 33 . 32,29	α Aquilæ.
	72 . 25 . 31,33			29,7	3 . 7,10	8,26			110 . 15 . 38,45	Mercury.

Coincidence of Micrometer Wire with fixed Wire = 10r,120, 10r,120, 10r,123, 10r,130, 10r,135 at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = + 3″,8. From Feb. 10. = + 6″,0.
Adopted Zenith Point = 336°. 38′. 52″,39.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Feb. 12	α Cygni R. M.	149. 5	4. 11,8	11,9	18,5	9,4	15,8	10,0	13,100	−1. 2,09	149. 8. 11,64	G.
	α Cygni	344. 5	4. 34,0	33,2	38,9	31,8	38,2	32,7			344. 9. 35,72	G.
Feb. 13	(*a*) ϕ^2 Cancri (preceding)	1. 20	3. 42,6	41,4	49,7	39,8	46,3	39,5			1. 23. 43,95	G.
	ϕ^2 Cancri (following) M.	1. 20	3. 42,6	41,4	49,7	39,8	46,3	39,5	10,324	− 4,27	1. 23. 39,68	G.
	Saturn N.L.	46. 30	2. 25,0	23,8	30,0	21,3	28,4	24,4			46. 32. 25,97	G.
	α Aquilæ R. M	112. 50	3. 9,2	7,9	15,9	4,8	10,0	5,5	9,165	+ 19,89	112. 53. 29,41	G.
	α Aquilæ	20. 20	4. 18,0	18,0	25,0	12,9	21,5	14,1			20. 24. 19,12	G.
	α Cygni R. M.	149. 5	4. 19,7	20,8	27,9	15,8	24,8	17,1	13,511	−1. 10,74	149. 8. 11,14	G.
	α Cygni	344. 5	4. 34,0	33,7	41,8	30,8	40,3	32,3			344. 9. 36,40	G.
Feb. 14	(*b*) ⊙ S.L. M.	42. 5	4. 18,0	18,8	24,8	13,4	21,5	15,1	9,608	+ 10,65	42. 9. 30,12	G.
	⊙ N.L.	41. 35	2. 6,7	6,0	13,2	3,0	9,0	3,4			41. 37. 7,30	G.
	Venus S.L.	25. 55	2. 2,4	2,8	9,8	0,0	6,0	0,0			25. 57. 3,92	G.
	F Eridani	46. 45	4. 30,2	31,8	35,3	26,2	33,6	28,5			46. 49. 31,83	G.
	η Tauri R. M.	128. 0	2. 14,6	15,1	18,5	11,3	15,0	11,9	9,030	+ 22,71	128. 2. 37,54	G.
	η Tauri	5. 15	0. 6,0	5,5	13,4	3,0	8,5	5,5			5. 15. 7,00	G.
	ζ Ursæ Min. SP. R. M.	206. 5	3. 9,8	11,1	14,0	5,3	12,8	7,4	10,736	− 12,87	206. 7. 57,83	G.
	ζ Ursæ Min. SP.	287. 5	4. 45,2	47,9	50,0	43,0	46,4	44,0			287. 9. 47,03	G.
	80 Tauri	13. 30	4. 11,7	12,8	17,0	8,6	17,2	9,5			13. 34. 13,63	G.
	(*c*) Aldebaran R. M.	120. 35	2. 19,0	20,4	23,0	15,4	20,8	17,0	9,640	+ 9,99	120. 37. 29,72	G.
	Aldebaran	12. 40	0. 13,4	13,5	20,0	10,8	16,1	12,4			12. 40. 14,40	G.
	Ceres	3. 50	4. 19,8	20,8	26,0	16,0	24,6	18,3			3. 54. 21,78	G.
	ζ Draconis SP. R. M.	218. 25	4. 19,8	22,4	23,9	15,9	25,7	18,6	8,924	+ 24,92	218. 29. 46,84	G.
	ζ Draconis SP.	274. 45	2. 60,0	61,3	64,6	57,8	60,8	58,7			274. 48. 1,13	G.
	120 Tauri	10. 25	0. 50,2	50,8	56,6	47,3	53,9	49,0			10. 25. 51,47	G.
	ϕ^2 Orionis	19. 35	3. 56,0	57,2	63,5	53,1	61,3	53,6			19. 38. 58,23	G.
	d Orionis	36. 5	3. 32,2	34,5	38,3	28,5	37,0	31,8			36. 8. 34,42	G.
	A.S.C. 721	14. 50	1. 12,7	13,0	18,0	9,4	16,7	11,5			14. 51. 13,78	G.
	δ U. Min. SP. R. M.	197. 50	0. 22,0	22,8	26,3	18,9	27,2	21,8	10,953	− 17,39	197. 50. 5,84	G.
	δ Ursæ Min. SP.	295. 25	2. 39,0	39,7	42,3	34,1	40,0	35,9			295. 27. 39,02	G.
	(*d*) Saturn S.L.	46. 30	3. 3,8	7,3	10,8	1,0	8,2	4,1			46. 33. 6,48	G.
Feb. 15	(*e*) ⊙ N.L. M.	41. 15	3. 10,8	10,5	15,9	7,3	13,1	8,8	14,429	−1. 29,89	41. 16. 41,81	G.
	⊙ S.L.	41. 45	4. 4,1	4,7	9,4	0,2	6,0	1,5			41. 49. 5,13	G.
	Saturn N.L.	46. 30	3. 4,2	5,1	8,0	0,0	6,4	1,4			46. 33. 5,00	G.
	α Lyræ R. M.	143. 0	4. 27,8	29,8	35,2	25,9	32,9	29,1	11,304	− 24,72	143. 4. 6,28	G.
	α Lyræ	350. 10	3. 38,2	38,3	46,8	35,8	43,0	36,3			350. 13. 40,45	G.
Feb. 16	⊙ S.L. M.	41. 25	3. 21,9	22,8	28,0	18,4	25,7	20,0	10,030	+ 1,86	41. 28. 24,96	G.
	⊙ N.L.	40. 55	1. 3,7	4,0	11,0	2,1	6,7	2,0			40. 56. 5,02	G.
	(*f*) Venus S.L.	25. 40	1. 30,8	31,7	37,0	28,4	36,0	29,6			25. 41. 32,38	G.
	Jupiter S.L.	21. 55	2. 4,5	5,3	10,3	1,8	9,3	3,8			21. 57. 6,02	G.
Feb. 19	Regulus R. M.	117. 10	1. 24,8	24,3	28,3	21,4	27,4	22,9	7,950	+ 45,23	117. 12. 10,21	G.
	Regulus	16. 5	0. 34,8	34,2	40,8	32,0	38,9	34,2			16. 5. 35,87	G.
	(*g*) Jupiter N.L.	21. 45	2. 32,1	31,1	37,3	27,4	35,3	30,9			21. 47. 32,58	G.
	α Aquilæ R. M.	112. 50	3. 17,3	17,8	22,2	14,0	20,5	13,8	9,690	+ 8,95	112. 53. 26,85	G.
	α Aquilæ	20. 20	4. 16,8	18,0	23,1	12,2	21,8	13,5			20. 24. 17,95	G.
	(*h*) Mercury, center	48. 15	1. 26,2	26,2	30,8	23,3	30,8	23,8			48. 16. 26,98	G.
	α Cephei R. M.	166. 20	0. 32,8	32,3	40,0	31,5	36,2	32,1	12,556	− 50,82	166. 19. 43,38	G.
	α Cephei	326. 55	3. 1,2	1,2	7,6	0,0	4,5	0,0			326. 58. 2,70	G.

Runs and coincidence at middle wire taken Feb. 20, 2^h. (Therm. 36°.)

(*a*) This star precedes the other about one tenth of a second.
(*b*) Not satisfactory.
(*c*) A blur.
(*d*) Cloudy and ill-defined.
(*e*) Very doubtful: rather too bright for the eye, but would not allow of dark glass.
(*f*) Cloudy. The cusp is very sharp and its termination doubtful. Adopted semidiameter = Tabular semidiameter corrected by + 1″,17. (See Introduction.)
(*g*) Cloudy.
(*h*) Very faint.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
53,68	7 . 30 . 40,75	29,460	31,0	30,6	7,89				45 . 17 . 56,92	α Cygni R.
	7 . 30 . 43,33								45 . 17 . 59,50	α Cygni.
	24 . 44 . 51,56	29,548	30,4	28,5	27,76				62 . 32 . 27,60	ϕ^2 Cancri.
	24 . 44 . 47,29				27,76				62 . 32 . 23,33	ϕ^2 Cancri.
	69 . 53 . 33,58	29,618	29,0	25,6	2 . 44,60	0,81	9,251	9,06	107 . 43 . 34,71	Saturn.
54,26	43 . 45 . 22,98	29,680	27,8	26,7	58,10				81 . 33 . 29,36	α Aquilæ R.
	43 . 45 . 26,73								81 . 33 . 33,11	α Aquilæ.
53,77	7 . 30 . 41,25		29,0	28,6	7,98				45 . 17 . 57,51	α Cygni R.
	7 . 30 . 44,01								45 . 18 . 0,27	α Cygni.
	65 . 30 . 37,73	29,684	30,5	31,7	2 . 11,29	7,87		16 . 12,50	103 . 3 . 36,93	⊙.
	64 . 58 . 14,91				2 . 8,10	7,84			103 . 3 . 35,95	⊙.
	49 . 18 . 11,53	29,662	32,7	33,3	1 . 9,51	20,13	12,403	26,27	87 . 5 . 42,92	Venus.
	70 . 10 . 39,44	29,636	32,4	31,6	2 . 45,11				108 . 0 . 32,83	F Eridani.
52,27	28 . 36 . 14,85				32,73				66 . 23 . 55,86	η Tauri R.
	28 . 36 . 14,61								66 . 23 . 55,62	η Tauri.
52,43	- 49 . 29 . 5,44				1 . 10,14				- 11 . 43 . 7,30	ζ U. Min. SP. R.
	- 49 . 29 . 5,36								- 11 . 43 . 7,22	ζ Urs. Min. SP.
	36 . 55 . 21,24	29,626	32,4	31,2	45,10				74 . 43 . 14,62	80 Tauri.
52,06	36 . 1 . 22,67				43,65				73 . 49 . 14,60	Aldebaran R.
	36 . 1 . 22,01								73 . 49 . 13,94	Aldebaran.
	27 . 15 . 29,39				30,94	1,79			65 . 3 . 6,82	Ceres.
53,98	- 61 . 50 . 54,45		31,5	30,8	1 . 51,90				- 24 . 5 . 38,07	ζ Dracon. SP. R.
	- 61 . 50 . 51,26								- 24 . 5 . 34,88	ζ Draconis SP.
	33 . 46 . 59,08				40,20				71 . 34 . 47,56	120 Tauri.
	43 . 0 . 5,84				56,00				80 . 48 . 10,12	ϕ^2 Orionis.
	59 . 29 . 42,03				1 . 41,70				97 . 18 . 32,01	*d* Orionis.
	38 . 12 . 21,39				47,28				76 . 0 . 16,95	A.S.C. 721.
52,43	- 41 . 11 . 13,45	29,620	31,2	29,8	52,65				- 3 . 24 . 57,82	δ U. Min. SP. R.
	- 41 . 11 . 13,37								- 3 . 24 . 57,74	δ Ursæ Min. SP.
	69 . 54 . 14,09	29,580	31,0	29,4	2 . 43,18	0,81	10,987	9,06	107 . 43 . 55,68	Saturn.
	64 . 37 . 49,42	29,564	32,5	33,1	2 . 5,28	7,82		16 . 12,30	102 . 43 . 7,46	⊙.
	65 . 10 . 12,74				2 . 8,35	7,85			102 . 43 . 9,22	⊙.
	69 . 54 . 12,61	29,460	29,8	27,8	2 . 43,07	0,81	9,233	9,24	107 . 44 . 12,39	Saturn.
53,37	13 . 34 . 46,11	29,496	29,5	29,2	14,51				51 . 22 . 8,90	α Lyræ R.
	13 . 34 . 48,06								51 . 22 . 10,85	α Lyræ.
	64 . 49 . 32,57	29,542	33,5	34,0	2 . 6,04	7,83		16 . 12,10	102 . 22 . 26,96	⊙.
	64 . 17 . 12,63				2 . 3,05	7,79			102 . 22 . 28,27	⊙.
	49 . 2 . 39,99		34,0	34,2	1 . 8,48	20,60		27,47	86 . 50 . 8,68	Venus.
	45 . 18 . 13,63	29,588	31,0	30,5	1 . 0,65	1,36	12,200	21,70	83 . 5 . 59,50	Jupiter.
53,04	39 . 26 . 42,18	29,820	33,4	31,6	49,65				77 . 14 . 40,11	Regulus R.
	39 . 26 . 43,48								77 . 14 . 41,41	Regulus.
	45 . 8 . 40,19	29,796	32,4	30,9	1 . 0,68	1,36	8,080	+ 21,26	82 . 57 . 9,05	Jupiter.
52,40	43 . 45 . 25,54	29,610	32,6	31,5	57,38				81 . 33 . 31,20	α Aquilæ R.
	43 . 45 . 25,56								81 . 33 . 31,22	α Aquilæ.
	71 . 37 . 34,59	29,600	33,4	33,6	2 . 57,96	7,44			109 . 27 . 33,39	Mercury.
53,04	- 9 . 40 . 50,99	29,594	33,8	35,2	10,15				28 . 6 . 7,14	α Cephei R.
	- 9 . 40 . 49,69								28 . 6 . 8,44	α Cephei.

Coincidence of Micrometer Wire with fixed Wire = $10^r,123$ at middle Wire. From Feb. 13 = $10^r,119$.
One Micrometer Revolution = 20″,855.
Correction for Runs = + 6″,0. From Feb. 16 = + 2″,7.
Adopted Zenith Point = 336°. 38′. 52″,39.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Feb. 20	⊙ S.L. M.	40 . 0	4 . 18,0	19,0	23,0	14,0	21,2	15,5	11,407	- 26,87	40 . 3 . 51,96	G.
	⊙ N.L.	39 . 30	1 . 30,6	31,0	35,6	27,8	34,8	29,8		· ·	39 . 31 . 31,73	G.
	(a) Venus S.L.	25 . 25	0 . 22,3	23,0	28,1	20,3	27,8	21,0			25 . 25 . 23,78	G.
	δ U. Min. SP. R. M.	197 . 45	4 . 47,2	49,1	53,5	45,9	50,7	46,4	9,260	+ 17,92	197 . 50 . 7,15	G.
	δ Ursæ Min. SP....	295 . 25	2 . 36,2	34,9	39,5	32,5	36,9	34,6			295 . 27 . 36,00	G.
Feb. 21	α Cygni R. M.....	149 . 5	4 . 13,8	16,0	21,0	10,4	18,4	11,7	13,322	-1 . 6,79	149 . 8 . 8,81	G.
	α Cygni...........	344 . 5	4 . 34,3	34,8	40,0	32,0	38,8	32,4			344 . 9 . 35,80	G.
	α Cephei R. M....	166 . 15	4 . 15,3	16,0	22,8	13,4	20,4	13,6	8,910	+ 25,22	166 . 19 . 42,52	G.
	α Cephei.........	326 . 55	3 . 2,8	1,5	8,4	0,7	6,3	1,0			326 . 58 . 3,73	G.
Feb. 22	(b) ⊙ S.L. M.........	39 . 20	1 . 9,8	11,0	16,0	7,8	14,6	10,8	12,050	- 40,27	39 . 20 . 31,50	G.
	⊙ N.L.	38 . 45	3 . 13,3	13,3	18,5	9,0	17,0	10,8			38 . 48 . 13,93	G.
	Ceres............	3 . 25	4 . 25,8	26,0	31,7	22,7	29,2	23,0			3 . 29 . 26,80	G.
Feb. 24	(c) α Hydræ R. M....	96 . 25	4 . 10,2	12,5	13,2	7,2	12,8	6,6	7,761	+ 49,18	96 . 29 . 59,98	G.
	α Hydræ..........	36 . 45	2 . 43,6	44,8	48,1	40,9	46,5	41,3			36 . 47 . 44,45	G.
	Jupiter S.L.......	21 . 30	3 . 13,0	14,1	16,4	8,8	15,0	9,0			21 . 33 . 13,00	G.
Feb. 28	δ U. Min. SP. R. M.	197 . 50	0 . 20,0	17,7	22,4	18,5	21,0	20,0	10,641	- 11,00	197 . 50 . 8,95	G.
	δ Ursæ Min. SP...	295 . 25	2 . 34,2	32,6	35,5	30,5	33,3	30,7			295 . 27 . 32,92	G.
	Castor R. M.	136 . 40	0 . 14,0	12,3	17,1	12,0	14,0	13,6	8,804	+ 27,33	136 . 40 . 41,18	G.
	Castor............	356 . 35	2 . 2,8	0,0	7,8	0,0	5,0	0,0			356 . 37 . 2,70	G.
	Procyon R. M.....	110 . 5	0 . 21,8	18,8	23,4	19,0	20,4	19,8	10,758	- 13,42	110 . 5 . 7,13	G.
	Procyon..........	23 . 10	2 . 35,9	34,6	39,2	32,0	38,5	33,8			23 . 12 . 35,78	G.
	Pollux R. M.......	132 . 50	1 . 10,2	8,5	14,1	8,9	10,4	8,0	9,928	+ 3,89	132 . 51 . 13,96	G.
	Pollux............	0 . 25	1 . 30,2	26,4	33,9	26,3	32,4	28,2			0 . 26 . 29,63	G.
	ψ^3 Cancri.........	358 . 40	3 . 3,2	1,7	9,5	1,1	4,5	1,0			358 . 43 . 3,65	G.
	κ Cephei SP. R. M.	207 . 10	2 . 14,4	13,5	16,8	11,7	15,6	13,0	11,068	- 19,89	207 . 11 . 54,38	G.
	κ Cephei SP......	286 . 5	0 . 47,7	45,1	48,3	46,0	44,6	46,5			286 . 5 . 46,40	G.
	ϕ^2 Cancri (preceding)	1 . 20	3 . 42,5	40,0	48,3	39,4	45,6	40,1			1 . 23 . 42,82	G.
	ϕ^2 Cancri (following) M.	1 . 20	3 . 42,5	40,0	48,3	39,4	45,6	40,1	10,305	- 3,98	1 . 23 . 38,84	G.
	η Cephei SP. R. M.	223 . 10	2 . 10,0	7,0	13,0	6,8	10,0	8,8	12,263	- 44,82	223 . 11 . 24,55	G.
	η Cephei SP.......	270 . 5	1 . 19,8	18,3	20,0	17,9	18,0	19,8			270 . 6 . 19,03	G.
	ι Ursæ Maj. R. M..	153 . 5	1 . 20,8	19,8	25,8	19,8	22,2	22,0	9,674	+ 9,17	153 . 6 . 30,97	G.
	ι Ursæ Majoris....	340 . 10	1 . 12,8	10,0	15,0	11,4	13,5	11,7			340 . 11 . 12,45	G.
Mar. 3	ι Tauri	7 . 25	4 . 52,0	52,0	58,0	50,0	53,2	48,9			7 . 29 . 52,58	G.
	Capella R. M......	150 . 15	1 . 16,9	15,2	20,8	15,2	16,0	14,8	11,200	- 22,65	150 . 15 . 53,90	G.
	Capella...........	343 . 0	1 . 51,0	48,2	55,5	50,3	51,8	48,9			343 . 1 . 51,03	G.
	(d) ☽ S.L	1 . 45	4 . 6,2	6,0	12,0	4,8	8,8	3,2		- 2,54	1 . 49 . 4,48	G.
	☽ S.L. M	1 . 45	4 . 6,2	6,0	12,0	4,8	8,8	3,2	10,206	- 2,03 - 1,27	1 . 49 . 3,72	G.
	☽ S.L. M..........	1 . 45	4 . 6,2	6,0	12,0	4,8	8,8	3,2	10,265	- 3,15	1 . 49 . 3,87	G.
	☽ S.L. M..........	1 . 45	4 . 6,2	6,0	12,0	4,8	8,8	3,2	10,306	- 3,85 + 1,27	1 . 49 . 4,44	G.
	☽ S.L. M..........	1 . 45	4 . 6,2	6,0	12,0	4,8	8,8	3,2	10,372	- 5,16 + 2,54	1 . 49 . 4,40	G.
	β Tauri R. M.....	132 . 50	3 . 13,4	13,0	16,8	10,9	13,0	10,8	6,675	+1 . 11,71	132 . 54 . 24,84	G.
	β Tauri..........	0 . 20	3 . 18,0	15,3	22,8	15,5	19,0	14,0			0 . 23 . 17,58	G.
	Regulus R. M.....	117 . 10	1 . 11,7	11,4	15,7	8,9	11,6	8,4	7,410	+ 56,38	117 . 12 . 7,71	G.
	Regulus..........	16 . 5	0 . 36,8	35,4	39,8	34,0	39,0	35,3			16 . 5 . 36,75	G.
	(e) Jupiter N.L......	21 . 10	0 . 54,1	54,5	60,0	52,4	56,5	52,3			21 . 10 . 55,02	G.

Coincidences at the five wires and Runs taken March 5, 23h. (Temp. 48°.)

(a) Exceedingly cloudy and doubtful. Adopted semidiameter = Tabular semidiameter + 1″,21.

(b) Cloudy. N.L. without dark glass.

(c) Great motion. It had been raining all day.

(d) At the five wires. Good.

(e) Cloudy.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N.P.D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	63 . 24 . 59,57	29,582	34,8	35,7	1 . 58,20	7,73		16 . 11,20	100 . 57 . 47,12	☉.
	62 . 52 . 39,34				1 . 55,50	7,69			100 . 57 . 46,63	☉.
	48 . 46 . 31,39	29,570	35,4	36,5	1 . 7,57	21,53	12,170	28,81	86 . 33 . 56,90	Venus.
51,58	- 41 . 11 . 14,76	29,550	33,3	32,0	52,29				- 3 . 24 . 58,77	δ U. Min. SP. R.
	- 41 . 11 . 16,39								- 3 . 25 . 0,40	δ Ursæ Min. SP.
52,31	7 . 30 . 43,58	29,616	33,8	33,6	7,88				45 . 17 . 59,74	α Cygni R.
	7 . 30 . 43,41								45 . 17 . 59,57	α Cygni.
53,13	- 9 . 40 . 50,13		34,7	35,0	10,16				28 . 6 . 7,99	α Cephei R.
	- 9 . 40 . 48,66								28 . 6 . 9,46	α Cephei.
	62 . 41 . 39,11	29,602	36,0	36,8	1 . 54,41	7,67		16 . 10,80	100 . 14 . 23,33	☉.
	62 . 9 . 21,54				1 . 51,84	7,64			100 . 14 . 24,82	☉.
	26 . 50 . 34,41	29,556	34,8	34,0	30,14	1,68			64 . 38 . 11,15	Ceres.
52,22	60 . 8 . 52,41	28,612	38,2	39,4	1 . 39,03				97 . 57 . 39,72	α Hydræ R.
	60 . 8 . 52,06								97 . 57 . 39,37	α Hydræ.
	44 . 54 . 20,61				56,78	1,36	12,207	21,77	82 . 42 . 2,54	Jupiter.
50,94	- 41 . 11 . 16,56	29,052	42,4	41,5	50,40				- 3 . 24 . 58,68	δ U. Min. SP. R.
	- 41 . 11 . 19,47								- 3 . 25 . 1,59	δ Ursæ Min. SP.
51,94	19 . 58 . 11,21		41,7	40,8	20,98				57 . 45 . 40,47	Castor R.
	19 . 58 . 10,31								57 . 45 . 39,57	Castor.
51,46	46 . 33 . 45,26				1 . 0,89				84 . 21 . 54,43	Procyon R.
	46 . 33 . 43,39								84 . 21 . 52,56	Procyon.
51,80	23 . 47 . 38,43				25,45				61 . 35 . 12,16	Pollux R.
	23 . 47 . 37,24								61 . 35 . 10,97	Pollux.
	22 . 4 . 11,26			40,4	23,42				59 . 51 . 42,96	ψ^3 Cancri.
50,39	- 50 . 33 . 1,99				1 . 10,09				- 12 . 47 . 3,80	κ Cephei SP. R.
	- 50 . 33 . 5,99								- 12 . 47 . 7,80	κ Cephei SP.
	24 . 44 . 50,43				26,63				62 . 32 . 25,34	ϕ^2 Cancri.
	24 . 44 . 46,45				26,63				62 . 32 . 21,36	ϕ^2 Cancri.
51,79	- 66 . 32 . 32,16				2 . 12,32				- 28 . 47 . 36,20	η Cephei SP. R.
	- 66 . 32 . 33,36								- 28 . 47 . 37,40	η Cephei SP.
51,71	3 . 32 . 21,42				3,57				41 . 19 . 33,27	ι Ursæ Maj. R.
	3 . 32 . 20,06								41 . 19 . 31,91	ι Ursæ Majoris.
	30 . 51 . 0,19	29,138	41,5	40,4	34,60				68 . 38 . 43,07	ι Tauri.
52,47	6 . 22 . 58,49				6,48				44 . 10 . 13,25	Capella R.
	6 . 22 . 58,64								44 . 10 . 13,40	Capella.
	25 . 10 . 12,09								62 . 18 . 44,85	☽.
	25 . 10 . 11,33								62 . 18 . 44,09	☽.
	25 . 10 . 11,48				27,23	23 . 42,98		15 . 19,77	62 . 18 . 44,24	☽.
	25 . 10 . 12,05								62 . 18 . 44,81	☽.
	25 . 10 . 12,01								62 . 18 . 44,77	☽.
51,21	23 . 44 . 27,55				25,48				61 . 32 . 1,31	β Tauri R.
	23 . 44 . 25,19								61 . 31 . 58,95	β Tauri.
52,23	39 . 26 . 44,68	29,134	37,6	34,2	48,25				77 . 14 . 41,21	Regulus R.
	39 . 26 . 44,36								77 . 14 . 40,89	Regulus.
	44 . 32 . 2,63	29,128	37,2	35,3	57,53	1,35	8,008	21,96	82 . 20 . 29,05	Jupiter.

Coincidence of Micrometer Wire with fixed Wire = 10^r,119 at middle Wire. From Feb. 28 = 10^r,110, 10^r,109, 10^r,114, 10^r,121, 10^r,125 at the five wires.

One Micrometer Revolution = 20″,855.

Correction for Runs = + 2″,7. From Feb. 28 = + 1″,4.

Adopted Zenith Point = 336°. 38′. 52″,39.

Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Mar. 6	(a) ⊙ S.L. M.........	34 . 50	0 . 24,8	26,1	28,0	24,4	28,1	23,7	13,325	-1 . 6,96	34 . 49 . 18,91	G.
	⊙ N.L............	34 . 15	2 . 1,8	5,0	5,7	1,7	5,3	0,8			34 . 17 . 3,48	G.
	Capella R. M.......	150 . 15	1 . 17,3	19,8	23,4	18,3	21,7	19,0	11,356	- 25,90	150 . 15 . 54,08	G.
	Capella	343 . 0	1 . 48,0	48,7	54,8	48,3	52,0	47,8			343 . 1 . 50,02	G.
	β Tauri R. M.....	132 . 50	3 . 15,3	16,8	19,8	13,5	18,4	14,0	6,817	+1 . 8,76	132 . 54 . 25,21	G.
	β Tauri...........	0 . 20	3 . 16,0	15,8	21,9	13,9	18,0	13,7			0 . 23 . 16,70	G.
	d Orionis.........	36 . 5	3 . 34,8	36,8	39,7	32,4	38,5	34,8			36 . 8 . 36,33	G.
	A.S.C. 721........	14 . 50	1 . 13,7	13,0	17,2	11,7	16,7	12,3			14 . 51 . 14,15	G.
	δ U. Min. SP. R. M.	197 . 50	0 . 15,5	16,6	18,7	15,8	18,0	15,7	10,478	- 7,59	197 . 50 . 9,14	G.
	δ Ursæ Min. SP....	295 . 25	2 . 32,5	32,2	35,8	30,0	32,4	29,8			295 . 27 . 32,23	G.
	(b) ☽ N.L............	3 . 15	1 . 40,5	40,4	44,8	38,3	42,8	38,3		+ 4,23	3 . 16 . 45,16	G.
	☽ N.L. M..........	3 . 15	1 . 40,5	40,4	44,8	38,3	42,8	38,3	9,972	+ 2,86 + 2,12	3 . 16 . 45,91	G.
	☽ N.L. M..........	3 . 15	1 . 40,5	40,4	44,8	38,3	42,8	38,3	9,889	+ 4,70	3 . 16 . 45,63	G.
	☽ N.L. M..........	3 . 15	1 . 40,5	40,4	44,8	38,3	42,8	38,3	9,779	+ 7,13 - 2,12	3 . 16 . 45,94	G.
	☽ N.L. M..........	3 . 15	1 . 40,5	40,4	44,8	38,3	42,8	38,3	9,721	+ 8,42 - 4,23	3 . 16 . 45,12	G.
	ϕ^2 Cancri (preceding)...........	1 . 20	3 . 41,0	41,8	47,0	39,2	44,8	39,6			1 . 23 . 42,40	G.
	ϕ^2 Cancri (following) M.........	1 . 20	3 . 41,0	41,8	47,0	39,2	44,8	39,6	10,322	- 4,34	1 . 23 . 38,06	G.
	ι Cephei SP. R. M.	219 . 0	4 . 19,7	22,2	22,2	17,0	23,3	19,0	13,208	-1 . 4,52	219 . 3 . 16,25	G.
	ι Cephei SP.......	274 . 10	4 . 30,1	29,8	33,0	26,8	30,4	27,0			274 . 14 . 29,73	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 16,8	17,5	21,0	14,1	19,0	16,0	10,263	- 3,11	167 . 3 . 14,44	G.
	α Ursæ Majoris...	326 . 10	4 . 32,3	31,8	34,3	29,3	34,0	30,0			326 . 14 . 32,17	G.
	Jupiter S.L.......	21 . 0	2 . 28,7	28,0	30,5	24,7	28,7	25,6			21 . 2 . 27,82	G.
	α Cygni R. M......	149 . 5	4 . 7,8	8,3	13,7	5,5	9,3	5,4	13,108	-1 . 2,43	149 . 8 . 6,10	G.
	α Cygni	344 . 5	4 . 38,7	38,0	42,9	36,5	41,3	35,8			344 . 9 . 39,08	G.
	(c) Mercury, center...	43 . 0	1 . 37,2	40,0	39,7	36,3	41,5	36,8			43 . 1 . 38,67	G.
	(d) Venus S.L.........	27 . 25	2 . 33,6	36,0	36,8	31,5	38,4	31,7			27 . 27 . 34,78	G.
Mar. 7	⊙ N.L. M........	33 . 50	4 . 39,8	45,2	43,9	40,3	44,1	38,7	12,682	- 53,55	33 . 53 . 48,67	G.
	⊙ S.L.	34 . 25	0 . 60,0	63,8	63,3	60,6	63,0	58,5			34 . 26 . 1,58	G.
	γ Cancri..........	6 . 45	3 . 19,7	17,2	23,1	16,4	22,3	17,0			6 . 48 . 19,43	G.
	η Cephei SP. R. M.	223 . 10	2 . 19,7	19,0	20,5	17,2	23,4	18,3	12,861	- 57,28	223 . 11 . 22,50	G.
	η Cephei SP.......	270 . 5	1 . 22,7	21,9	22,5	22,3	22,3	22,9			270 . 6 . 22,50	G.
	(e) ☽ N.L.............	6 . 35	3 . 38,1	36,3	41,9	34,6	42,0	35,8			6 . 38 . 38,28	G.
	q Cancri..........	10 . 25	2 . 46,8	47,0	50,5	45,0	49,8	44,9			10 . 27 . 47,47	G.
	λ Leonis	5 . 10	0 . 28,3	24,4	31,7	25,4	31,0	27,2			5 . 10 . 28,02	G.
	(f) A.S.C. 1195	24 . 40	1 . 21,1	20,8	23,0	17,4	23,5	18,7		+ 0,17	24 . 41 . 20,99	G.
	Jupiter N.L.......	20 . 55	3 . 41,5	41,3	45,6	40,2	45,8	39,8			20 . 58 . 42,53	G.
	(d) Venus S.L.	27 . 40	3 . 43,6	45,2	47,1	40,7	46,8	41,5			27 . 43 . 44,32	G.
Mar. 8	(g) ⊙ S.L. M.........	34 . 0	3 . 21,1	21,0	23,9	18,4	22,7	19,0	12,165	- 42,54 + 0,49	34 . 2 . 39,12	G.
	(h) ι Tauri.......	7 . 25	4 . 51,0	52,0	55,2	48,8	53,8	47,3		+ 0,23	7 . 29 . 51,80	G.
	Capella R. M......	150 . 15	1 . 16,1	18,2	19,3	15,0	17,7	15,0	11,190	- 22,44	150 . 15 . 54,51	G.
	Capella...........	343 . 0	1 . 50,2	50,3	52,8	49,7	52,8	48,0			343 . 1 . 50,72	G.
	β Tauri R. M.....	132 . 50	3 . 12,7	12,2	13,8	10,2	12,3	9,0	6,552	+1 . 14,28	132 . 54 . 26,13	G.
	β Tauri...........	0 . 20	3 . 17,9	16,3	20,3	14,6	17,8	13,0			0 . 23 . 16,80	G.
	δ U. Min. SP. R. M.	197 . 50	0 . 43,4	43,0	45,8	42,4	44,9	42,4	11,750	- 34,12	197 . 50 . 9,56	G.
	δ Ursæ Min. SP....	295 . 25	2 . 37,7	35,8	37,5	33,3	35,5	33,8			295 . 27 . 35,72	G.
	(h) q Cancri	10 . 25	2 . 45,8	45,9	49,5	43,0	46,5	42,9		+ 0,20	10 . 27 . 45,93	G.
	λ Leonis	5 . 10	0 . 28,0	26,0	30,4	24,3	29,4	26,0			5 . 10 . 27,37	G.

(a) Very misty and doubtful.

(b) At the five wires.

(c) Faint.

(d) Adopted semidiameter = Tabular semidiameter + 1″,26.

(e) At middle wire: all the others cloudy.

(f) Four intervals past middle wire.

(g) At the 5th wire. Correction for change of N.P.D. = + 0″,54. N.L. was cloudy.

(h) At the 5th wire.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	58 . 10 . 26,52	29,678	48,4	48,8	1 . 33,18	7,31		16 . 7,80	95 . 42 . 52,87	⊙.
	57 . 38 . 11,09				1 . 31,27	7,27			95 . 42 . 51,17	⊙.
52,05	6 . 22 . 58,31	29,668	43,0	42,0	6,58				44 . 10 . 13,17	Capella R.
	6 . 22 . 57,63								44 . 10 . 12,49	Capella.
50,95	23 . 44 . 27,18				25,86				61 . 32 . 1,32	β Tauri R.
	23 . 44 . 24,31								61 . 31 . 58,45	β Tauri.
	59 . 29 . 43,94			41,7	1 . 39,53				97 . 18 . 31,75	*d* Orionis.
	38 . 12 . 21,76				46,28				76 . 0 . 16,32	A.S.C. 721.
50,69	−41 . 11 . 16,75				51,44				−3 . 24 . 59,91	δ U. Min. SP. R.
	−41 . 11 . 20,16								−3 . 25 . 3,32	δ Ursæ Min. SP.
	26 . 37 . 52,77	29,682	41,4	40,8					64 . 16 . 8,13	☽.
	26 . 37 . 53,52								64 . 16 . 8,88	☽.
	26 . 37 . 53,24				29,57	24 . 13,70		14 . 51,21	64 . 16 . 8,60	☽.
	26 . 37 . 53,55								64 . 16 . 8,91	☽.
	26 . 37 . 52,73								64 . 16 . 8,09	☽.
	24 . 44 . 50,01				27,18				62 . 32 . 25,47	ϕ^2 Cancri.
	24 . 44 . 45,67				27,18				62 . 32 . 21,13	ϕ^2 Cancri.
52,99	−62 . 24 . 23,86			40,0	1 . 52,55				−24 . 39 . 8,13	ι Cephei SP. R.
	−62 . 24 . 22,66								−24 . 39 . 6,93	ι Cephei SP.
53,31	−10 . 24 . 22,05				10,85				27 . 22 . 35,38	α Ursæ Maj. R.
	−10 . 24 . 20,22								27 . 22 . 37,21	α Ursæ Majoris.
	44 . 23 . 35,43				57,77	1,35	12,195	21,70	82 . 11 . 18,43	Jupiter.
52,59	7 . 30 . 46,29	29,758	41,5	42,3	7,78				45 . 18 . 2,35	α Cygni R.
	7 . 30 . 46,69								45 . 18 . 2,75	α Cygni.
	66 . 22 . 46,28		45,2	46,4	2 . 12,85	6,21			104 . 12 . 1,20	Mercury.
	50 . 48 . 42,39		45,8	46,8	1 . 11,52	23,74	12,422	30,86	88 . 36 . 7,59	Venus.
	57 . 14 . 56,28	29,766	46,5	47,7	1 . 30,40	7,24		16 . 7,60	95 . 19 . 35,32	⊙.
	57 . 47 . 9,19				1 . 32,28	7,28			95 . 19 . 34,87	⊙.
	30 . 9 . 27,04		42,5	40,5	34,37				67 . 57 . 9,69	γ Cancri.
52,50	−66 . 32 . 30,11				2 . 15,52				−28 . 47 . 37,35	η Cephei SP. R.
	−66 . 32 . 29,89								−28 . 47 . 37,13	η Cephei SP.
	29 . 59 . 45,89				34,15	26 . 53,53		14 . 46,15	67 . 35 . 20,94	☽.
	33 . 48 . 55,08				39,62				71 . 36 . 42,98	*q* Cancri.
	28 . 31 . 35,63				32,15				66 . 19 . 16,06	λ Leonis.
	48 . 2 . 28,60		41,3	39,5	1 . 5,86				85 . 50 . 42,74	A.S.C. 1195.
	44 . 19 . 50,14	29,800	40,8	39,2	57,97	1,35	8,048	21,54	82 . 8 . 16,58	Jupiter.
	51 . 4 . 51,93	30,030	43,6	44,4	1 . 13,23	23,75	12,638	30,86	88 . 52 . 18,83	Venus.
	57 . 23 . 46,73	30,038	44,5	45,0	1 . 32,24	7,25		16 . 7,40	94 . 56 . 12,60	⊙.
	30 . 50 . 59,41	30,122	43,8	42,5	35,61				68 . 38 . 43,30	ι Tauri.
52,62	6 . 22 . 57,88				6,67				44 . 10 . 12,83	Capella R.
	6 . 22 . 58,33								44 . 10 . 13,28	Capella.
51,47	23 . 44 . 26,26				26,22				61 . 32 . 0,76	β Tauri R.
	23 . 44 . 24,41								61 . 31 . 58,91	β Tauri.
52,64	−41 . 11 . 17,17	30,138	41,4	39,8	52,46				−3 . 25 . 1,35	δ U. Min. SP. R.
	−41 . 11 . 16,67								−3 . 25 . 0,85	δ Ursæ Min. SP
	33 . 48 . 53,54	30,168	40,0	37,8	40,37				71 . 36 . 42,19	*q* Cancri.
	28 . 31 . 34,98				32,77				66 . 19 . 16,03	λ Leonis.

Coincidence of Micrometer Wire with fixed Wire = 10^r,110, 10^r,109, 10^r,114, 10^r,121, 10^r,125 at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = + 1″,4.
Adopted Zenith Point = 336°. 38′. 52″,39.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Mar. 8	(a) ☽ N.L.	10 . 55	2 . 54,8	54,5	59,5	51,9	55,5	51,5		+ 6,74	10 . 58 . 1,49	G.
	☽ N.L. M.	10 . 55	2 . 54,8	54,5	59,5	51,9	55,5	51,5	9,938	+ 3,57 + 3,37	10 . 58 . 1,69	G.
	☽ N.L. M.	10 . 55	2 . 54,8	54,5	59,5	51,9	55,5	51,5	9,795	+ 6,66	10 . 58 . 1,41	G.
	☽ N.L. M.	10 . 55	2 . 54,8	54,5	59,5	51,9	55,5	51,5	9,611	+ 10,63 − 3,37	10 . 58 . 2,01	G.
	☽ N.L. M.	10 . 55	2 . 54,8	54,5	59,5	51,9	55,5	51,5	9,464	+ 13,78 − 6,74	10 . 58 . 1,79	G.
	A.S.C. 1195	24 . 40	1 . 21,7	20,8	23,4	16,8	21,4	19,0			24 . 41 . 20,58	G.
	Regulus R. M.	117 . 10	1 . 23,8	23,0	24,8	20,3	22,8	20,0	7,880	+ 46,58	117 . 12 . 9,10	G.
	Regulus	16 . 5	0 . 36,7	36,0	37,3	33,8	37,0	34,2			16 . 5 . 35,87	G.
	γ Leonis	8 . 10	1 . 39,2	37,8	41,9	36,0	39,7	36,4			8 . 11 . 38,58	G.
	m^2 Leonis M.	9 . 5	2 . 15,6	15,3	18,1	11,7	15,5	13,0	12,090	− 41,21	9 . 6 . 33,76	G.
	k Leonis	13 . 45	3 . 12,1	11,2	14,1	7,8	13,8	8,0			13 . 48 . 11,32	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 17,4	19,0	21,0	15,8	18,2	15,0	10,277	− 3,40	167 . 3 . 14,48	G.
	α Ursæ Majoris	326 . 10	4 . 31,8	32,2	33,3	29,0	33,2	28,5			326 . 14 . 31,55	G.
	Jupiter S.L.	20 . 55	1 . 22,3	22,8	24,8	20,1	23,0	20,6			20 . 56 . 22,33	G.
	α Cygni R. M.	149 . 5	4 . 10,3	10,3	14,7	6,3	10,7	6,3	13,165	−1 . 3,62	149 . 8 . 6,35	G.
	α Cygni	344 . 5	4 . 40,0	38,3	43,9	36,9	40,9	36,6			344 . 9 . 39,65	G.
Mar. 9	(b) ⊙ N.L. M.	33 . 5	2 . 13,8	15,7	16,4	11,9	14,8	12,0	10,572	− 9,55	33 . 7 . 4,65	G.
	⊙ S.L.	33 . 35	4 . 17,8	19,8	20,9	14,7	18,0	15,2			33 . 39 . 17,93	G.
	(c) ι Tauri	7 . 25	4 . 51,3	52,8	56,8	49,8	53,0	47,3		+ 0,23	7 . 29 . 52,30	G.
	(d) Capella R. M.	150 . 15	1 . 15,8	15,5	19,5	14,8	15,8	13,2	11,128	− 21,15 + 2,22	150 . 15 . 56,89	G.
	Capella	343 . 0	1 . 63,8	50,7	55,6	50,0	53,4	48,3			343 . 1 . 53,72	G.
	δ Orionis R. M.	104 . 0	0 . 71,2	57,8	60,0	57,8	57,0	54,8	7,594	+ 52,55	104 . 1 . 52,53	G.
	δ Orionis	29 . 15	0 . 67,8	55,5	58,8	53,1	55,4	53,0			29 . 15 . 57,32	G.
	ψ^3 Cancri	358 . 40	2 . 76,1	63,0	68,4	62,4	63,2	58,8			358 . 43 . 5,47	G.
	κ Cephei SP. R. M.	207 . 10	1 . 75,5	62,1	64,7	60,0	60,8	58,5	10,415	− 6,28	207 . 11 . 57,42	G.
	κ Cephei SP	286 . 5	0 . 62,3	49,0	50,8	48,2	45,2	47,3			286 . 5 . 50,50	G.
	γ Cancri	6 . 45	3 . 32,5	18,8	24,4	15,8	20,8	16,5			6 . 48 . 21,63	G.
	η Cephei SP. R. M.	223 . 10	2 . 31,0	17,5	19,8	14,8	17,3	16,0	12,780	− 55,59	223 . 11 . 23,93	G.
	η Cephei SP	270 . 5	1 . 38,2	26,0	26,9	24,6	23,4	23,8			270 . 6 . 27,22	G.
	ι Ursæ Maj. R. M.	153 . 5	1 . 32,2	19,0	22,8	18,3	19,3	18,3	9,414	+ 14,60	153 . 6 . 36,32	G.
	ι Ursæ Majoris	340 . 10	1 . 25,8	11,4	15,5	10,8	11,3	9,2			340 . 11 . 14,07	G.
	(e) ☽ N.L.	16 . 0	0 . 35,8	22,0	25,2	20,2	21,8	20,4			16 . 0 . 24,25	G.
	☽ N.L. M.	16 . 0	0 . 35,8	22,0	25,2	20,2	21,8	20,4	9,949	+ 3,59 − 3,71	16 . 0 . 24,13	G.
	☽ N.L. M.	16 . 0	0 . 35,8	22,0	25,2	20,2	21,8	20,4	9,798	+ 6,83 − 7,42	16 . 0 . 23,66	G.
	m^2 Leonis M.	9 . 5	2 . 34,8	20,8	25,0	19,0	22,3	19,7	12,464	− 49,01	9 . 6 . 34,71	G.
	k Leonis	13 . 45	3 . 23,8	8,0	13,0	6,8	9,3	6,4			13 . 48 . 11,37	G.
	(f) Jupiter N.L.	20 . 50	2 . 52,2	38,0	42,5	36,7	38,7	36,5			20 . 52 . 40,90	G.
Mar. 10	(g) Castor R. M.	136 . 40	0 . 32,2	24,5	27,1	23,0	24,3	23,9	9,140	+ 20,23	136 . 40 . 46,08	G.
	Castor	356 . 35	1 . 66,3	60,0	65,5	59,7	62,0	58,0			356 . 37 . 2,02	G.
	Pollux R. M.	132 . 50	0 . 25,0	17,9	19,8	16,3	17,4	16,0	7,326	+ 58,05	132 . 51 . 16,80	G.
	Pollux	0 . 25	1 . 35,8	27,7	32,4	26,4	29,3	26,1			0 . 26 . 29,68	G.
	γ Leonis	8 . 10	1 . 47,1	37,9	44,3	38,4	40,4	37,8			8 . 11 . 41,07	G.
	m^2 Leonis M.	9 . 5	2 . 12,8	6,2	10,0	4,5	6,0	2,8	11,695	− 33,05	9 . 6 . 34,10	G.
	k Leonis	13 . 45	3 . 18,2	10,4	14,6	8,1	11,8	7,3			13 . 48 . 11,90	G.
	l Leonis	17 . 25	1 . 64,3	57,2	61,1	55,2	57,4	53,9			17 . 26 . 58,28	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 15,6	9,8	13,4	7,2	9,8	6,8	9,862	+ 5,18	167 . 3 . 15,78	G.
	α Ursæ Majoris	326 . 10	4 . 37,8	31,0	33,7	29,0	31,7	28,6			326 . 14 . 32,20	G.

Before the observation of Castor March 10, Microscope A was adjusted.
Coincidences at the five wires and Runs taken March 13, 22h. (Temp. 50°.)

(a) At the five wires. The 3rd, 4th, and 5th, especially the last, were doubtful.

(b) Very badly defined.

(c) At the 5th wire.

(d) The Zenith Point changes here by an alteration in the reading of microscope A, which from some unknown cause, took place *between* the readings off for the reflexion and direct observations. In the calculation of the reflexion observation, 13″,3 has been added to the reading of A to make its excess above the mean the same as that inferred from 12 following observations.

(e) At 3rd, 4th, and 5th wires.

(f) At 5th wire. The corrections for curvature of path and change of N.P.D. cancel each other.

(g) The mercury disturbed by wind.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	34 . 19 . 9,10	30,168	40,0	38,7					71 . 51 . 26,58	☽.
	34 . 19 . 9,30								71 . 51 . 26,78	☽.
	34 . 19 . 9,02				41,07	30 . 14,79		14 . 42,92	71 . 51 . 26,50	☽.
	34 . 19 . 9,62								71 . 51 . 27,10	☽.
	34 . 19 . 9,40								71 . 51 . 26,88	☽.
	48 . 2 . 28,19				1 . 6,86				85 . 50 . 43,33	A.S.C. 1195.
52,48	39 . 26 . 43,29				49,49				77 . 14 . 41,06	Regulus R.
	39 . 26 . 43,48								77 . 14 . 41,25	Regulus.
	31 . 32 . 46,19				36,94				69 . 20 . 31,41	γ Leonis.
	32 . 27 . 41,37	30,172	39,8	38,4	38,31				70 . 15 . 27,96	m^2 Leonis.
	37 . 9 . 18,93				45,62				74 . 57 . 12,83	*k* Leonis.
53,02	– 10 . 24 . 22,09				11,06				27 . 22 . 35,13	α Ursæ Maj. R.
	– 10 . 24 . 20,84								27 . 22 . 36,38	α Ursæ Majoris.
	44 . 17 . 29,94				58,71	1,34	12,178	21,52	82 . 5 . 14,07	Jupiter.
53,00	7 . 30 . 46,04	30,182	39,4	38,2	7,95				45 . 18 . 2,27	α Cygni R.
	7 . 30 . 47,26								45 . 18 . 3,49	α Cygni.
	56 . 28 . 12,26	30,174	41,6	42,4	1 . 29,95	7,17		16 . 7,10	94 . 32 . 50,42	☉.
	57 . 0 . 25,54				1 . 31,80	7,21			94 . 32 . 51,31	☉.
	30 . 50 . 59,91	30,078	41,8	42,5	35,56				68 . 38 . 43,75	ι Tauri.
55,31	6 . 22 . 58,12				6,66				44 . 10 . 13,06	Capella R.
	6 . 22 . 58,71								44 . 10 . 13,65	Capella.
54,93	52 . 37 . 2,48				1 . 17,79				90 . 25 . 28,55	δ Orionis R.
	52 . 37 . 2,31								90 . 25 . 28,38	δ Orionis.
	22 . 4 . 10,46	30,040	39,8	38,7	24,30				59 . 51 . 43,04	ψ^3 Cancri.
53,96	– 50 . 33 . 2,41				1 . 12,73				– 12 . 47 . 6,86	κ Cephei SP. R.
	– 50 . 33 . 4,51								– 12 . 47 . 8,96	κ Cephei SP.
	30 . 9 . 26,62	30,028	39,4	37,2	34,91				67 . 57 . 9,81	γ Cancri.
55,57	– 66 . 32 . 28,92				2 . 17,66				– 28 . 47 . 38,30	η Cephei SP. R.
	– 66 . 32 . 27,79								– 28 . 47 . 37,17	η Cephei SP.
55,20	3 . 32 . 18,69				3,72				41 . 19 . 30,69	ι Ursæ Maj. R.
	3 . 32 . 19,06								41 . 19 . 31,06	ι Ursæ Majoris.
	39 . 21 . 29,24	30,004	37,8	35,7					76 . 50 . 8,74	☽.
	39 . 21 . 29,12				49,38	33 . 59,77		14 . 41,61	76 . 50 . 8,62	☽.
	39 . 21 . 28,65								76 . 50 . 8,15	☽.
	32 . 27 . 39,70				38,31				70 . 15 . 26,29	m^2 Leonis.
	37 . 9 . 16,36				45,63				74 . 57 . 10,27	*k* Leonis.
	44 . 13 . 45,89				58,58	1,34	8,063	21,50	82 . 2 . 12,91	Jupiter.
54,05	19 . 58 . 7,93	29,784	40,4	38,8	21,59				57 . 45 . 37,80	Castor R.
	19 . 58 . 8,01								57 . 45 . 37,88	Castor.
53,24	23 . 47 . 37,21				26,20				61 . 35 . 11,69	Pollux R.
	23 . 47 . 35,67								61 . 35 . 10,15	Pollux.
	31 . 32 . 47,06	29,744	39,3	38,2	36,46				69 . 20 . 31,80	γ Leonis.
	32 . 27 . 40,09	29,730		38,0	37,78				70 . 15 . 26,15	m^2 Leonis.
	37 . 9 . 17,89				45,00				74 . 57 . 11,17	*k* Leonis.
	40 . 48 . 4,27				51,24				78 . 36 . 3,79	*l* Leonis.
53,99	– 10 . 24 . 21,77				10,91				27 . 22 . 35,60	α Ursæ Maj. R.
	– 10 . 24 . 21,81								27 . 22 . 35,56	α Ursæ Majoris.

Coincidence of Micrometer Wire with fixed Wire = 10^{r},110, 10^{r},109, 10^{r},114, 10^{r},121, 10^{r},125 at the five wires.
From March 10 = 10^{r},105, 10^{r},104, 10^{r},110, 10^{r},114, 10^{r},118.
One Micrometer Revolution = 20″,855.
Correction for Runs = + 1″,4. From March 10 = + 1″,5.
Adopted Zenith Point = 336°. 38′. 52″,39. From Capella March 9 = 336°. 38′. 55″,01. From March 10 = 336°. 38′. 54″,01.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes. A	B	C	D	E	F	Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Mar. 10	χ Leonis	20 . 35	3 . 23,3	17,1	19,2	14,9	16,8	13,8			20 . 38 . 17,68	G.
	Jupiter S.L.	20 . 50	0 . 30,4	22,4	26,4	21,8	23,8	22,4			20 . 50 . 24,55	G.
	(a) ☽ N.L.	21 . 30	1 . 68,3	60,8	64,2	59,0	61,0	58,1		+ 7,82	21 . 32 . 9,82	G.
	☽ N.L. M.	21 . 30	1 . 68,3	60,8	64,2	59,0	61,0	58,1	9,938	+ 3,46 + 3,91	21 . 32 . 9,37	G.
	☽ N.L. M.	21 . 30	1 . 68,3	60,8	64,2	59,0	61,0	58,1	9,776	+ 6,96	21 . 32 . 8,96	G.
	☽ N.L. M.	21 . 30	1 . 68,3	60,8	64,2	59,0	61,0	58,1	9,557	+ 11,62 − 3,91	21 . 32 . 9,71	G.
	☽ N.L. M.	21 . 30	1 . 68,3	60,8	64,2	59,0	61,0	58,1	9,370	+ 15,60 − 7,82	21 . 32 . 9,78	G.
	ν Virginis	21 . 20	4 . 48,8	43,9	45,9	40,2	42,7	39,0			21 . 24 . 43,65	G.
	β Virginis	26 . 10	0 . 11,8	5,4	8,7	3,8	4,7	3,5			26 . 10 . 6,32	G.
Mar. 11	ν Virginis	21 . 20	4 . 47,8	42,0	45,2	39,7	41,7	38,4			21 . 24 . 42,70	G.
	(b) ☽ S.L.	27 . 50	0 . 56,8	48,0	52,7	47,2	47,9	47,0		+ 8,04	27 . 50 . 58,01	G.
	☽ S.L. M	27 . 50	0 . 56,8	48,0	52,7	47,2	47,9	47,0	9,978	+ 2,64 + 4,02	27 . 50 . 56,63	G.
	☽ S.L. M.	27 . 50	0 . 56,8	48,0	52,7	47,2	47,9	47,0	9,830	+ 5,84	27 . 50 . 55,81	G.
	☽ S.L. M	27 . 50	0 . 56,8	48,0	52,7	47,2	47,9	47,0	9,627	+ 10,15 − 4,02	27 . 50 . 56,10	G.
	☽ S.L. M.	27 . 50	0 . 56,8	48,0	52,7	47,2	47,9	47,0	9,435	+ 14,24 − 8,04	27 . 50 . 56,17	G.
Mar. 12	⊙ S.L. M.	32 . 25	4 . 9,0	9,2	4,0	6,0	4,9	1,2	10,810	− 14,60	32 . 28 . 51,32	G.
	⊙ N.L.	31 . 55	1 . 46,3	46,0	38,8	42,4	40,8	40,0			31 . 56 . 42,47	G.
	(c) Rigel R. M.	96 . 0	2 . 23,8	18,1	17,1	17,0	16,5	15,1	4,888	+1 . 48,91	96 . 4 . 6,96	G.
	Rigel	37 . 10	3 . 45,6	43,9	41,0	38,3	40,6	36,8			37 . 13 . 41,22	G.
	β Tauri R. M.	132 . 50	3 . 21,6	16,7	16,0	14,0	13,2	12,8	6,690	+1 . 11,32	132 . 54 . 27,20	G.
	β Tauri	0 . 20	3 . 23,8	19,0	21,4	16,0	19,2	13,2			0 . 23 . 18,93	G.
	δ Orionis R. M.	104 . 0	1 . 23,0	16,0	16,3	16,5	15,0	14,2	8,523	+ 33,10	104 . 1 . 50,00	G.
	δ Orionis	29 . 15	0 . 60,8	56,0	57,3	53,8	55,7	52,8			29 . 15 . 56,12	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 19,0	14,0	17,2	10,7	13,6	9,8	10,014	+ 2,01	167 . 3 . 16,23	G.
	α Ursæ Majoris	326 . 10	4 . 37,8	31,4	34,0	29,4	31,4	28,9			326 . 14 . 32,38	G.
	Jupiter S.L.	20 . 40	4 . 34,7	29,2	31,5	25,8	29,3	25,3			20 . 44 . 29,53	G.
	β Virginis	26 . 10	0 . 10,5	3,7	7,3	2,3	3,8	2,5			26 . 10 . 5,02	G.
	η Virginis	28 . 35	1 . 42,5	35,2	38,8	33,3	34,2	34,8			28 . 36 . 36,55	G.
	γ^1 Virginis	29 . 20	4 . 16,8	11,8	15,0	8,7	10,8	9,2			29 . 24 . 12,27	G.
	(d) ☽ S.L.	33 . 45	0 . 37,6	30,1	33,6	28,4	30,6	30,0		+ 8,06	33 . 45 . 39,81	G.
	☽ S.L. M	33 . 45	0 . 37,6	30,1	33,6	28,4	30,6	30,0	9,964	+ 2,92 + 4,03	33 . 45 . 38,70	G.
	☽ S.L. M	33 . 45	0 . 37,6	30,1	33,6	28,4	30,6	30,0	9,798	+ 6,51	33 . 45 . 38,26	G.
	☽ S.L. M	33 . 45	0 . 37,6	30,1	33,6	28,4	30,6	30,0	9,625	+ 10,19 − 4,03	33 . 45 . 37,91	G.
	☽ S.L. M	33 . 45	0 . 37,6	30,1	33,6	28,4	30,6	30,0	9,380	+ 15,39 − 8,06	33 . 45 . 39,08	G.
	θ Virginis	33 . 30	0 . 49,4	43,2	45,2	41,3	43,4	42,7			33 . 30 . 44,23	G.
Mar. 13	(e) ☽ S.L.	39 . 30	4 . 23,4	19,0	18,4	14,8	17,5	14,0		+ 7,90	39 . 34 . 25,97	G.
	☽ S.L. M	39 . 30	4 . 23,4	19,0	18,4	14,8	17,5	14,0	9,940	+ 3,42 + 3,95	39 . 34 . 25,44	G.
	☽ S.L. M	39 . 30	4 . 23,4	19,0	18,4	14,8	17,5	14,0	9,800	+ 6,47	39 . 34 . 24,54	G.
	☽ S.L. M	39 . 30	4 . 23,4	19,0	18,4	14,8	17,5	14,0	9,514	+ 12,51 − 3,95	39 . 34 . 26,63	G.
	☽ S.L. M	39 . 30	4 . 23,4	19,0	18,4	14,8	17,5	14,0	9,294	+ 17,19 − 7,90	39 . 34 . 27,36	G.

(a) At the five wires. Limb uneven.

(b) At the five wires. Uneven and very misty.

(c) The mercury waving a little.

(d) At the five wires.

(e) At the five wires. The 3rd wire very doubtful. So much mist that all the rest are unsatisfactory.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	43 . 59 . 23,67				57,29				81 . 47 . 29,24	χ Leonis.
	44 . 11 . 30,54	29,730	39,3	38,0	57,70	1,34	12,188	21,67	81 . 59 . 13,51	Jupiter.
	44 . 53 . 15,81	29,714	39,0	37,8					82 . 18 . 13,03	☽.
	44 . 53 . 15,36								82 . 18 . 12,58	☽.
	44 . 53 . 14,95				59,11	37 . 51,97		14 . 41,80	82 . 18 . 12,17	☽.
	44 . 53 . 15,70								82 . 18 . 12,92	☽.
	44 . 53 . 15,77								82 . 18 . 12,99	☽.
	44 . 45 . 49,64				58,86				82 . 33 . 56,78	ν Virginis.
	49 . 31 . 12,31				1 . 9,50				87 . 19 . 30,09	β Virginis.
	44 . 45 . 48,69	29,842	37,6	35,4	59,40				82 . 33 . 56,37	ν Virginis.
	51 . 12 . 4,00								88 . 3 . 47,29	☽.
	51 . 12 . 2,62								88 . 3 . 45,91	☽.
	51 . 12 . 1,80				1 . 14,45	41 . 55,88		14 . 43,56	88 . 3 . 45,09	☽.
	51 . 12 . 2,09								88 . 3 . 45,38	☽.
	51 . 12 . 2,16								88 . 3 . 45,45	☽.
	55 . 49 . 57,31	30,050	40,8	44,3	1 . 27,14	7,11		16 . 6,40	93 . 22 . 19,22	⊙.
	55 . 17 . 48,46				1 . 25,41	7,07			93 . 22 . 21,48	⊙.
54,09	60 . 34 . 47,05	30,090	42,0	43,8	1 . 45,00				98 . 23 . 40,33	Rigel R.
	60 . 34 . 47,21								98 . 23 . 40,49	Rigel.
53,07	23 . 44 . 26,81				26,13				61 . 32 . 1,22	β Tauri R.
	23 . 44 . 24,92								61 . 31 . 59,33	β Tauri.
53,06	52 . 37 . 4,01				1 . 17,63				90 . 25 . 29,92	δ Orionis R.
	52 . 37 . 2,11								90 . 25 . 28,02	δ Orionis.
54,30	– 10 . 24 . 22,22	30,100	37,0	35,4	11,11				27 : 22 . 34,95	α Ursæ Maj. R.
	– 10 . 24 . 21,63								27 . 22 . 35,54	α Ursæ Majoris.
	44 . 5 . 35,52				58,53	1,34	12,190	21,69	81 . 53 . 19,30	Jupiter.
	49 . 31 . 11,01	30,096	36,7	35,2	1 . 10,77				87 . 19 . 30,06	β Virginis.
	51 . 57 . 42,54				1 . 17,18				89 . 46 . 8,00	η Virginis.
	52 . 45 . 18,26				1 . 19,42				90 . 33 . 45,96	γ^1 Virginis.
	57 . 6 . 45,80								93 . 55 . 18,27	☽.
	57 . 6 . 44,69								93 . 55 . 17,16	☽.
	57 . 6 . 44,25				1 . 33,30	45 . 22,31		14 . 46,80	93 . 55 . 16,72	☽.
	57 . 6 . 43,90								93 . 55 . 16,37	☽.
	57 . 6 . 45,07								93 . 55 . 17,54	☽.
	56 . 51 . 50,22				1 . 32,43				94 . 40 . 30,93	θ Virginis.
	62 . 55 . 31,96	29,922	48,0	47,9					99 . 41 . 19,55	☽.
	62 . 55 . 31,43								99 . 41 . 19,02	☽.
	62 . 55 . 30,53				1 . 54,11	48 . 23,26		14 . 51,54	99 . 41 . 18,12	☽.
	62 . 55 . 32,62								99 . 41 . 20,21	☽.
	62 : 55 . 33,35								99 . 41 . 20,94	☽.

Coincidence of Micrometer Wire with fixed Wire = 10^{r},105, 10^{r},104, 10^{r},110, 10^{r},114, 10^{r},118 at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = + 1″,5.
Adopted Zenith Point = 336° . 38′ . 54″,01.
Assumed Co-latitude = 37° . 47′ . 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Mar. 15	α Ursæ Maj. R. M.	167 . 0	3 . 18,5	11,2	15,3	7,5	12,6	7,2	9,840	+ 5,64	167 . 3 . 17,86	G.
	α Ursæ Majoris...	326 . 10	4 . 39,0	30,1	31,5	28,8	30,4	28,8			326 . 14 . 31,67	G.
	Jupiter N.L.	20 . 35	0 . 12,7	2,7	6,5	3,5	4,2	1,8			20 . 35 . 5,23	G.
	γ Ursæ Maj. R. M.	159 . 0	3 . 16,3	9,0	12,7	7,7	9,3	5,7	14,549	-1 . 32,57	159 . 1 . 37,71	G.
	γ Ursæ Majoris...	334 . 15	1 . 18,4	8,5	11,3	9,0	9,4	8,8			334 . 16 . 10,97	G.
	(*a*) Venus S.L.	30 . 0	2 . 28,0	20,0	22,8	18,3	20,7	18,0			30 . 2 . 21,42	G.
Mar. 16	A.S.C. 1195	24 . 40	1 . 29,8	21,6	24,7	18,2	22,0	19,8			24 . 41 . 22,75	G.
	(*b*) Jupiter S.L.	20 . 30	2 . 67,8	59,8	63,7	57,0	59,7	55,9			20 . 33 . 0,80	G.
	α Cephei R. M....	166 . 20	0 . 32,4	23,1	29,3	23,3	23,4	21,8	12,362	- 46,96	166 . 19 . 38,61	G.
	α Cephei	326 . 55	3 . 18,3	7,8	13,2	8,0	9,8	7,1			326 . 58 . 10,87	G.
	Venus S.L.	30 . 15	4 . 25,0	15,7	20,4	13,2	16,9	13,0			30 . 19 . 17,58	G.
Mar. 17	γ Leonis	8 . 10	1 . 47,0	38,8	42,5	38,0	39,8	37,2			8 . 11 . 40,63	G.
	Jupiter N.L.	20 . 25	4 . 34,8	27,3	31,4	23,8	28,6	24,4			20 . 29 . 28,62	G.
	α Cygni R. M.	149 . 5	4 . 13,0	6,0	10,8	3,4	7,0	1,3	13,051	-1 . 1,33	149 . 8 . 5,80	G.
	α Cygni	344 . 5	4 . 49,5	41,0	45,2	40,4	42,7	38,7			344 . 9 . 43,15	G.
	α Cephei R. M. ...	166 . 15	4 . 14,0	6,8	12,2	5,5	6,0	2,4	8,727	+ 28,84	166 . 19 . 36,86	G.
	α Cephei	326 . 55	3 . 17,2	7,8	12,3	8,5	9,3	6,8			326 . 58 . 10,48	G.
Mar. 19	(*c*) Venus N.L.	31 . 5	1 . 34,9	26,2	29,3	26,2	29,7	25,6			31 . 6 . 28,67	C.
	(*c*) Mercury, center ..	34 . 35	0 . 41,6	34,3	34,8	33,8	38,1	33,1			34 . 35 . 35,95	C.
Mar. 20	⊙ S.L. M	29 . 20	0 . 18,3	10,7	14,1	11,1	14,1	10,3	11,523	- 29,42	29 . 19 . 43,68	C.
	⊙ N.L.	28 . 45	2 . 40,4	31,9	33,7	31,7	36,0	30,4			28 . 47 . 34,05	C.
	(*d*) Jupiter S.L.	20 . 20	1 . 65,0	58,9	62,3	57,0	60,4	56,1			20 . 21 . 59,98	C.
	Venus N.L.	31 . 20	1 . 30,2	23,6	25,5	21,8	25,7	21,0			31 . 21 . 24,65	G.
Mar. 21	⊙ N.L. M.	28 . 25	0 . 15,2	8,9	10,8	8,2	9,8	6,2	13,788	-1 . 16,67	28 . 23 . 53,18	G.
	⊙ S.L.	28 . 55	0 . 65,8	60,0	61,3	58,0	60,0	56,3			28 . 56 . 0,25	G.
	Jupiter S.L.	20 . 15	4 . 25,9	17,5	20,6	14,8	18,6	15,4			20 . 19 . 18,85	C.
Mar. 26	(*e*) Jupiter S.L.	20 . 5	1 . 44,0	38,1	39,0	34,8	39,0	35,0			20 . 6 . 38,33	G.
	(*f*) β Cephei R. M....	174 . 15	2 . 13,0	2,4	7,0	3,8	6,6	3,2	11,961	- 38,43 - 1,64	174 . 16 . 25,96	G.
	(*f*) β Cephei	319 . 0	1 . 26,2	15,5	19,0	16,3	18,9	15,4		+ 1,64	319 . 1 . 20,21	G.
	Venus N.L.	32 . 35	1 . 32,0	25,8	25,5	24,8	27,8	23,4			32 . 36 . 26,57	G.
Mar. 27	⊙ N.L. M.	26 . 0	4 . 15,4	11,9	9,1	7,2	12,8	4,4	15,438	-1 . 51,09	26 . 2 . 19,09	G.
	⊙ S.L.	26 . 30	4 . 26,8	23,0	20,2	19,7	25,2	17,0			26 . 34 . 22,05	G.
	Polaris R. M.	192 . 50	1 . 17,0	6,7	10,7	8,4	10,0	5,8	7,218	+1 . 0,34	192 . 52 . 10,12	G.
	Polaris	300 . 25	0 . 44,0	35,0	37,8	34,0	38,0	33,8			300 . 25 . 37,10	G.
	(*g*) α Arietis R. M....	127 . 5	4 . 14,8	6,9	7,0	5,5	7,4	4,1	12,828	- 56,64	127 . 8 . 11,03	G.
	α Arietis	6 . 5	4 . 37,5	33,7	32,8	29,0	36,4	27,0			6 . 9 . 32,80	G.
	Aldebaran R. M...	120 . 35	2 . 15,0	6,0	6,8	7,8	7,0	4,8	9,153	+ 20,00	120 . 37 . 27,93	G.
	Aldebaran	12 . 40	0 . 21,3	14,8	16,9	14,8	18,5	11,0			12 . 40 . 16,22	G.
	Capella R. M.	150 . 15	1 . 22,0	12,5	15,7	13,3	15,4	12,8	11,176	- 22,19	150 . 15 . 53,11	G.
	Capella	343 . 0	1 . 57,8	49,3	53,0	49,8	55,2	47,0			343 . 1 . 52,03	G.
	β Tauri R. M.	132 . 50	3 . 17,4	9,8	8,0	8,2	10,6	7,0	6,528	+1 . 14,73	132 . 54 . 24,95	G.
	β Tauri	0 . 20	3 . 23,8	16,6	19,3	14,6	21,5	12,0			0 . 23 . 18,02	G.
	δ Orionis R. M....	104 . 0	1 . 15,0	7,4	6,9	8,4	8,4	4,7	8,188	+ 40,13	104 . 1 . 48,61	G.
	δ Orionis	29 . 15	0 . 62,3	55,3	56,4	54,3	59,0	52,3			29 . 15 . 56,62	G.

Coincidence at middle wire and Runs taken March 26, 1^{h}.

(*a*) Very cloudy and doubtful.
(*b*) No reflexion observations could be obtained this night: too much wind. (*c*) Great unsteadiness.
(*d*) Too much wind for reflexion observations.
(*e*) Very cloudy.
(*f*) A few seconds before and after the 5th wire: corrections calculated for two intervals.
(*g*) Dancing. The zenith points by this, and the four following day observations, do not well agree with those before or after.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N.P.D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
54,77	− 10 . 24 . 23,85	29,850	41,4	39,7	10,92				27 . 22 . 33,51	α Ursæ Maj. R.
	− 10 . 24 . 22,34								27 . 22 . 35,02	α Ursæ Majoris.
	43 . 56 . 11,22				57,21	1,33	8,018	21,82	81 . 44 . 37,20	Jupiter.
54,34	− 2 . 22 . 43,70				2,47				35 . 24 . 22,11	γ Ursæ Maj. R.
	− 2 . 22 . 43,04								35 . 24 . 22,77	γ Ursæ Majoris.
	53 . 23 . 27,41	29,700	45,4	46,0	1 . 18,43	23,04	12,978	29,92	91 . 11 . 1,16	Venus.
	48 . 2 . 28,74	29,430	38,6	37,3	1 . 5,42				85 . 50 . 42,44	A.S.C. 1195.
	43 . 54 . 6,79				56,63	1,33	12,208	21,88	81 . 41 . 48,49	Jupiter.
54,74	− 9 . 40 . 44,60	29,318	41,0	40,0	9,95				28 . 6 . 13,73	α Cephei R.
	− 9 . 40 . 43,14								28 . 6 . 15,19	α Cephei.
	53 . 40 . 23,57		41,8	41,8	1 . 18,90	22,88	12,958	29,69	91 . 27 . 58,18	Venus.
	31 . 32 . 46,62	29,300	39,7	37,2	35,99				69 . 20 . 30,89	γ Leonis.
	43 . 50 . 34,61				56,27	1,33	8,050	21,48	81 . 38 . 59,31	Jupiter.
54,48	7 . 30 . 48,21	29,480	39,0	37,6	7,78				45 . 18 . 4,27	α Cygni R.
	7 . 30 . 49,14								45 . 18 . 5,20	α Cygni.
53,67	− 9 . 40 . 42,85			38,5	10,04				28 . 6 . 15,39	α Cephei R.
	− 9 . 40 . 43,53								28 . 6 . 14,71	α Cephei.
	54 . 27 . 34,66	29,044	47,5	50,2	1 . 19,08	22,25	7,411	28,20	92 . 16 . 7,97	Venus.
	57 . 56 . 41,94	29,036	47,8	49,8	1 . 30,20	5,39			95 . 45 . 15,03	Mercury.
	52 . 40 . 49,67	29,026	49,7	51,2	1 . 13,92	6,82		16 . 4,20	90 . 13 . 0,85	⊙.
	52 . 8 . 40,04				1 . 12,51	6,77			90 . 12 . 58,26	⊙.
	43 . 43 . 5,97	29,234	38,7	37,8	55,83	1,32	12,230	22,09	81 . 30 . 46,67	Jupiter.
	54 . 42 . 30,64	29,210	43,7	44,0	1 . 21,28	22,02	7,495	27,36	92 . 31 . 5,54	Venus.
	51 . 44 . 59,17	29,200	45,7	45,3	1 . 12,79	6,73		16 . 3,90	89 . 49 . 17,41	⊙.
	52 . 17 . 6,24				1 . 14,19	6,78			89 . 49 . 18,03	⊙.
	43 . 40 . 24,84	29,310	38,9	37,5	55,92	1,32	12,179	21,56	81 . 28 . 6,16	Jupiter.
	43 . 27 . 44,32	30,140	42,6	41,4	56,62	1,30	12,158	21,34	81 . 15 . 26,58	Jupiter.
53,08	− 17 . 37 . 31,95	30,238	43,0	43,6	18,98				20 . 9 . 17,35	β Cephei R.
	− 17 . 37 . 33,80								20 . 9 . 15,50	β Cephei.
	55 . 57 . 32,56	30,244	43,8	46,8	1 . 27,66	20,45	7,710	25,28	93 . 46 . 13,33	Venus.
	49 . 23 . 25,08	30,252	46,6	51,3	1 . 8,53	6,49		16 . 2,20	87 . 27 . 37,60	⊙.
	49 . 55 . 28,04				1 . 9,83	6,54			87 . 27 . 37,41	⊙.
53,61	− 36 . 13 . 16,11		47,5	53,0	42,93				1 . 33 . 9,24	Polaris R.
	− 36 . 13 . 16,91								1 . 33 . 8,44	Polaris.
51,92	29 . 30 . 42,98		48,4	53,3	33,17				67 . 18 . 24,43	α Arietis R.
	29 . 30 . 38,79								67 . 18 . 20,24	α Arietis.
52,08	36 . 1 . 26,08		52,6	55,2	42,42				73 . 49 . 16,78	Aldebaran R.
	36 . 1 . 22,21								73 . 49 . 12,91	Aldebaran.
52,57	6 . 23 . 0,90	30,258	52,2	54,2	6,55				44 . 10 . 15,73	Capella R.
	6 . 22 . 58,02								44 . 10 . 12,85	Capella.
51,49	23 . 44 . 29,06				25,73				61 . 32 . 3,07	β Tauri R.
	23 . 44 . 24,01								61 . 31 . 58,02	β Tauri.
52,62	52 . 37 . 5,40				1 . 16,41				90 . 25 . 30,09	δ Orionis R.
	52 . 37 . 2,61								90 . 25 . 27,30	δ Orionis.

Coincidence of Micrometer Wire with fixed Wire = 10^{r},110 at middle Wire. From March 19 = 10^{r},112.
One Micrometer Revolution = 20″,855.
Correction for Runs = + 1″,5. From March 19 = + 0″,4.
Adopted Zenith point = 336°. 38′. 54″,01.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Mar. 27	Jupiter N.L......	20. 0	3.38,5	33,6	33,5	29,7	34,0	29,3			20. 3.33,15	G.
Mar. 28	(a) ⊙ S.L. M.........	26.10	2.18,6	12,8	12,8	9,9	14,2	7,8	13,830	−1.17,54	26.10.55,18	G.
	⊙ N.L............	25.35	3.58,7	52,8	54,0	49,1	52,8	46,4			25.38.52,35	G.
	Polaris R. M......	192.50	1.15,7	6,3	9,8	7,2	9,7	4,2	7,214	+1. 0,43	192.52. 9,26	G.
	Polaris............	300.25	0.45,4	36,2	37,8	34,9	38,3	35,1			300.25.37,95	G.
	α Cephei SP. R. M.	222.30	1.18,0	10,9	10,7	10,0	12,8	9,0	13,265	−1. 5,75	222.30. 6,17	G.
	α Cephei SP......	270.45	2.47,8	41,5	38,8	39,8	39,3	39,8			270.47.41,20	G.
	(b) β Cephei SP. R. M.	214.30	4.12,6	5,7	4,9	2,5	5,8	1,4	11,233	−23,38 +0,41	214.33.42,56	G.
	(b) β Cephei SP......	278.40	4.11,2	5,0	3,4	3,4	2,0	2,0		−1,64	278.44. 2,91	G.
	Regulus R. M.....	117.10	2.14,5	6,4	7,8	5,9	7,2	2,8	9,955	+3,28	117.12.10,75	G.
	Regulus	16. 5	0.42,8	34,4	36,8	34,2	36,5	33,8			16. 5.36,43	G.
	Jupiter S.L.......	20. 0	1.61,0	53,8	54,6	53,4	55,5	51,0			20. 1.54,92	G.
	(c) α Cephei R. M....	166.15	4.15,0	6,0	11,8	5,8	8,8	3,5	8,845	+26,43	166.19.34,96	G.
	α Cephei.........	326.55	3.20,2	10,2	13,4	11,4	15,0	9,3			326.58.13,30	G.
	Venus N.L........	32.55	0.23,5	16,0	16,1	14,7	18,5	13,9			32.55.17,12	G.
Mar. 29	⊙ N.L. M........	25.15	2.14,7	7,4	8,8	5,8	9,0	3,6	14,870	−1.39,23	25.15.29,02	G.
	⊙ S.L............	25.45	2.38,5	30,0	31,5	28,5	33,4	27,2			25.47.31,55	G.
Mar. 30	(d) ⊙ S.L............	25.20	4.20,0	13,0	13,8	9,5	14,7	8,3			25.24.13,27	G.
	⊙ N.L............	24.50	2.16,3	8,9	11,0	8,6	11,3	5,5			24.52.10,30	G.
	(e) Polaris R. M.......	192.50	1.18,0	7,3	10,4	9,0	9,8	6,0	7,230	+60,09	192.52.10,19	G.
	Polaris............	300.25	0.44,5	34,0	37,0	34,8	37,5	33,3			300.25.36,87	G.
	(f) ☽ S.L.............	2.35	0.39,0	33,4	34,1	33,9	37,0	30,4		−3,66	2.35.30,97	G.
	☽ S.L. M.........	2.35	0.39,0	33,4	34,1	33,9	37,0	30,4	10,206	−1,98 −1,83	2.35.30,82	G.
	☽ S.L. M.........	2.35	0.39,0	33,4	34,1	33,9	37,0	30,4	10,386	−5,64	2.35.28,99	G.
	☽ S.L. M.........	2.35	0.39,0	33,4	34,1	33,9	37,0	30,4	10,448	−6,81 +1,83	2.35.29,65	G.
	☽ S.L. M..........	2.35	0.39,0	33,4	34,1	33,9	37,0	30,4	10,430	−6,32 +3,66	2.35.31,97	G.
	Rigel R. M.......	96. 0	4.22,0	12,8	11,6	15,3	12,8	13,4	10,762	−13,47	96. 4. 1,23	G.
	Rigel............	37.10	3.47,1	43,4	38,0	41,6	43,0	39,0			37.13.42,07	G.
	β Tauri R. M.....	132.50	3.15,3	5,0	5,5	6,4	5,2	5,1	6,357	+1.18,39	132.54.25,52	G.
	β Tauri..........	0.20	3.25,8	18,8	19,8	17,0	21,7	14,0			0.23.19,57	G.
	ζ Tauri..........	7.45	3.53,4	47,3	47,3	45,9	50,0	43,0			7.48.47,87	G.
	ψ^3 Cancri........	358.40	2.69,8	60,8	63,3	58,9	62,0	59,4			358.43. 2,10	G.
	ϕ^2 Cancri (preceding)..........	1.20	3.48,8	41,1	42,8	39,5	42,8	39,0			1.23.42,38	G.
	ϕ^2 Cancri (following) M.........	1.20	3.48,8	41,1	42,8	39,5	42,8	39,0	10,310	−4,04	1.23.38,34	G.
	Jupiter S.L.......	19.55	2.32,0	23,8	23,3	21,4	23,0	22,0			19.57.24,28	G.
	(g) γ Ursæ Maj. R. M.	159. 0	2.21,5	14,3	15,7	14,0	14,9	13,3	11,728	−33,39 −0,84	159. 1.41,42	G.
	(g) γ Ursæ Majoris...	334.15	1.14,8	5,0	6,0	6,2	5,5	5,4		+0,84	334.16. 8,01	G.
	η Virginis........	28.35	1.45,3	36,9	37,8	35,8	37,0	37,0			28.36.38,32	G.
	18 Comæ Berenices.	3.50	1.12,0	3,1	6,5	3,6	4,8	2,4			3.51. 5,42	G.
	γ Virginis........	29.20	4.21,4	13,3	14,3	11,4	12,7	12,9			29.24.14,38	G.
	θ Virginis........	33.30	0.53,4	45,8	45,5	45,1	45,0	46,5			33.30.46,90	G.
April 1	ε Geminorum.....	3.30	3.70,2	58,9	64,0	59,0	59,5	57,7			3.34. 2,03	G.

Coincidences at the five wires and Runs taken April 1, 23h. (Temp. 40°.)

(a) Badly defined.
(b) At 4th and 5th wires. (c) Faint.
(d) Cloudy and unsteady. S.L. came on fixed wire, but not quite accurately.

(e) Dancing.
(f) At the five wires. Faint and doubtful.
(g) A few seconds before and after the 5th wire.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	43 . 24 . 39,14	30,330	47,0	46,4	56,29	1,30	8,054	21,46	81 . 13 . 3,87	Jupiter.
	49 . 32 . 1,17	30,472	47,3	47,5	1 . 9,89	6,50		16 . 1,90	87 . 4 . 10,94	⊙.
	48 . 59 . 58,34				1 . 8,59	6,45			87 . 4 . 10,66	⊙.
53,61	– 36 . 13 . 15,25		47,8	49,2	43,56				1 . 33 . 9,47	Polaris R.
	– 36 . 13 . 16,06								1 . 33 . 8,66	Polaris.
53,69	– 65 . 51 . 12,16	30,454	47,6	46,8	2 . 12,53				– 28 . 6 . 16,41	α Cephei SP. R.
	– 65 . 51 . 12,81								– 28 . 6 . 17,06	α Cephei SP.
52,74	– 57 . 54 . 48,55				1 . 35,03				– 20 . 9 . 15,30	β Cephei SP. R.
	– 57 . 54 . 51,10								– 20 . 9 . 17,85	β Cephei SP.
53,59	39 . 26 . 43,26			45,8	49,23				77 . 14 . 40,77	Regulus R.
	39 . 26 . 42,42								77 . 14 . 39,93	Regulus.
	43 . 23 . 0,91			45,5	56,57	1,30	12,169	21,45	81 . 10 . 43,01	Jupiter.
54,13	– 9 . 40 . 40,95	30,450	45,0	45,0	10,23				28 . 6 . 17,10	α Cephei R.
	– 9 . 40 . 40,71								28 . 6 . 17,34	α Cephei.
	56 . 16 . 23,11	30,460	47,2	48,2	1 . 29,05	19,88	7,792	24,50	94 . 5 . 5,06	Venus.
	48 . 36 . 35,01	30,458	51,0	52,6	1 . 6,93	6,41		16 . 1,70	86 . 40 . 45,51	⊙.
	49 . 8 . 37,54				1 . 8,20	6,46			86 . 40 . 45,86	⊙.
	48 . 45 . 19,26	30,356	51,4	53,8	1 . 6,89	6,42		16 . 1,40	86 . 17 . 26,61	⊙.
	48 . 13 . 16,29				1 . 5,65	6,37			86 . 17 . 25,25	⊙.
53,53	– 36 . 13 . 16,18	30,350	52,2	55,3	42,86				1 . 33 . 9,24	Polaris R.
	– 36 13 . 17,14								1 . 33 . 8,28	Polaris.
	25 . 56 . 36,96	30,240	54,8	57,9					63 . 3 . 41,19	☽.
	25 . 56 . 36,81								63 . 3 . 41,04	☽.
	25 . 56 . 34,98				28,23	24 . 53,81		15 . 38,47	63 . 3 . 39,21	☽.
	25 . 56 . 35,64								63 . 3 . 39,87	☽.
	25 . 56 . 37,96								63 . 3 . 42,19	☽.
51,65	60 . 34 . 52,78	30,230	54,6	58,5	1 . 42,38				98 . 23 . 43,44	Rigel R.
	60 . 34 . 48,06								98 . 23 . 38,72	Rigel.
52,55	23 . 44 . 28,49				25,48				61 . 32 . 2,25	β Tauri R.
	23 . 44 . 25,56								61 . 31 . 59,32	β Tauri.
	31 . 9 . 53,86				35,04				68 . 57 . 37,18	ζ Tauri.
	22 . 4 . 8,09	30,196	52,5	53,1	23,72				59 . 51 . 40,09	ψ^3 Cancri.
	24 . 44 . 48,37				26,96				62 . 32 . 23,61	ϕ^2 Cancri.
	24 . 44 . 44,33				26,96				62 . 32 . 19,57	ϕ^2 Cancri.
	43 . 18 . 30,27	30,150	48,6	46,6	55,73	1,29	12,144	21,15	81 . 6 . 11,84	Jupiter.
54,72	– 2 . 22 . 47,41	30,140	47,0	44,8	2,47				35 . 24 . 18,40	γ Ursæ Maj. R.
	– 2 . 22 . 46,00								35 . 24 . 19,81	γ Ursæ Majoris.
	51 . 57 . 44,31		46,4	44,4	1 . 15,82				89 . 46 . 8,41	η Virginis.
	27 . 12 . 11,41				30,54				64 . 59 . 50,23	18 Comæ Beren.
	52 . 45 . 20,37				1 . 18,02				90 . 33 . 46,67	γ Virginis.
	56 . 51 . 52,89	30,128	45,0	43,4	1 . 30,95				94 . 40 . 32,12	θ Virginis.
	26 . 55 . 8,02	30,092	39,0	37,5	30,56				64 . 42 . 46,86	ε Geminorum.

Coincidence of Micrometer Wire with fixed Wire = 10ʳ,112 at middle Wire. From March 30 = 10ʳ,110, 10ʳ,111, 10ʳ,116, 10ʳ,122, 10ʳ,127 at the five wires.

One Micrometer Revolution = 20″,855.

Correction for Runs = + 0″,4. From April 1 = + 3″,5.

Adopted Zenith Point = 336° . 38′ . 54″,01.

Assumed Co-latitude = 37° . 47′ . 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
April 1	(*a*) ☽ N.L.	0 . 35	1 . 56,3	46,0	52,3	47,4	46,8	45,8		+ 1,52	0 . 36 . 50,84	G.
	☽ N.L. M.	0 . 35	1 . 56,3	46,0	52,3	47,4	46,8	45,8	10,004	+ 2,24 + 0,76	0 . 36 . 52,32	G.
	☽ N.L. M.	0 . 35	1 . 56,3	46,0	52,3	47,4	46,8	45,8	9,996	+ 2,51	0 . 36 . 51,83	G.
	☽ N.L. M.	0 . 35	1 . 56,3	46,0	52,3	47,4	46,8	45,8	9,968	+ 3,21 – 0,76	0 . 36 . 51,77	G.
	☽ N.L. M.	0 . 35	1 . 56,3	46,0	52,3	47,4	46,8	45,8	9,980	+ 3,07 – 1,52	0 . 36 . 50,87	G.
	Venus N.L.	33 . 20	2 . 70,0	61,0	64,3	59,6	61,8	59,8			33 . 23 . 3,10	G.
April 2	⊙ S.L. M.	24 . 10	4 . 44,4	37,5	39,1	34,9	37,6	33,4	9,980	+ 2,83	24 . 14 . 41,18	G.
	⊙ N.L.	23 . 40	2 . 48,0	40,4	43,3	38,8	42,0	38,3			23 . 42 . 42,12	G.
	(*b*) Polaris R. M.	192 . 50	1 . 17,4	7,4	11,6	9,2	9,0	5,9	7,311	+ 58,49	192 . 52 . 8,71	G.
	Polaris	300 . 25	0 . 47,0	37,0	39,7	38,0	38,0	35,8			300 . 25 . 39,32	G.
	α Cephei R. M.	166 . 15	4 . 17,4	8,8	13,0	7,8	8,9	5,8	8,941	+ 24,51	166 . 19 . 35,28	G.
	α Cephei	326 . 55	3 . 22,0	12,0	15,3	12,3	12,8	11,7			326 . 58 . 14,73	G.
	β Cephei R. M.	174 . 15	2 . 16,8	7,0	11,9	7,7	8,3	7,0	12,235	– 44,19	174 . 16 . 25,84	G.
	β Cephei	319 . 0	1 . 31,0	19,8	23,2	21,3	20,8	20,5			319 . 1 . 22,92	G.
	(*c*) Venus N.L.	33 . 25	2 . 61,1	52,8	55,0	51,7	54,0	51,0	- ·		33 . 27 . 54,60	G.
April 3	(*d*) ⊙ N.L. M.	23 . 20	0 . 20,0	11,2	14,3	11,0	12,2	10,0	11,770	– 34,49	23 . 19 . 38,64	G.
	⊙ S.L.	23 . 50	1 . 47,0	39,4	42,4	37,3	41,0	37,0			23 . 51 . 40,88	G.
	Polaris R. M.	192 . 50	1 . 20,4	12,0	14,4	11,8	12,4	9,4	7,414	+ 56,34	192 . 52 . 9,87	G.
	Polaris	300 . 25	0 . 48,3	38,3	41,0	37,8	39,5	37,0			300 . 25 . 40,40	G.
	(*e*) Mercury, center.	22 . 5	3 . 34,7	27,0	27,7	24,2	28,7	24,0			22 . 8 . 28,12	G.
April 4	⊙ S.L. M.	23 . 25	4 . 27,9	20,3	24,3	15,0	24,0	16,0	11,864	– 36,46	23 . 28 . 44,66	G.
	⊙ N.L.	22 . 55	1 . 54,1	47,8	51,1	45,0	50,4	44,9			22 . 56 . 48,83	G.
	(*f*) *α* Cygni R. M.	149 . 5	4 . 13,7	5,5	7,3	3,7	6,0	2,8	13,128	–1 . 2,58 – 0,59	149 . 8 . 3,20	G.
	α Cygni	344 . 5	4 . 50,6	42,0	43,9	41,7	44,3	39,8		+ 1,34	344 . 9 . 44,91	G.
	α Cephei R. M.	166 . 15	4 . 12,8	3,5	7,8	3,8	5,0	1,4	8,800	+ 27,46	166 . 19 . 33,06	G.
	α Cephei	326 . 55	3 . 21,7	11,0	12,6	12,1	13,3	10,6			326 . 58 . 13,45	G.
	(*g*) *β* Cephei R. M.	174 . 15	2 . 21,8	11,0	14,2	12,8	14,3	12,1	12,484	– 49,39	174 . 16 . 24,91	G.
	β Cephei	319 . 0	1 . 30,0	19,2	21,6	20,5	21,5	19,2			319 . 1 . 21,95	G.
	Venus N.L.	33 . 35	0 . 17,0	10,4	9,0	11,3	10,3	9,0			33 . 35 . 11,17	G.
April 5	(*h*) ⊙ N.L. M.	22 . 30	4 . 29,3	24,8	22,0	21,1	25,0	19,5	11,277	– 24,22	22 . 33 . 59,26	G.
	⊙ S.L.	23 . 5	0 . 61,8	56,5	55,8	55,0	56,8	53,0			23 . 5 . 56,45	G.
April 7	(*i*) Jupiter N.L.	19 . 40	0 . 64,0	54,0	58,0	54,8	55,9	53,6			19 . 40 . 56,68	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 20,5	11,7	14,8	11,0	12,8	10,0	9,630	+ 10,13	167 . 3 . 23,50	G.
	α Ursæ Majoris	326 . 10	4 . 34,4	22,3	24,3	22,3	24,0	22,8			326 . 14 . 24,88	G.
	ι Leonis	17 . 25	0 . 57,1	46,5	49,6	46,0	47,5	46,1			17 . 25 . 48,78	G.
	υ Leonis	28 . 45	1 . 37,8	27,4	28,9	27,3	27,8	27,8			28 . 46 . 29,45	G.
	(*k*) ☽ N.L.	25 . 15	4 . 53,8	44,8	46,5	43,0	44,8	42,7		+ 8,00	25 . 19 . 53,78	G.
	☽ N.L. M	25 . 15	4 . 53,8	44,8	46,5	43,0	44,8	42,7	9,947	+ 3,38 + 4,00	25 . 19 . 53,16	G.
	☽ N.L. M	25 . 15	4 . 53,8	44,8	46,5	43,0	44,8	42,7	9,790	+ 6,80	25 . 19 . 52,58	G.
	☽ N.L. M.	25 . 15	4 . 53,8	44,8	46,5	43,0	44,8	42,7	9,590	+ 11,07 – 4,00	25 . 19 . 52,85	G.
	☽ N.L. M.	25 . 15	4 . 53,8	44,8	46,5	43,0	44,8	42,7	9,355	+ 16,08 – 8,00	25 . 19 . 53,86	G.
	b Virginis	24 . 15	2 . 34,5	24,3	26,5	22,8	24,4	23,9			24 . 17 . 26,00	G.
	n Virginis	28 . 40	3 . 63,0	53,5	55,1	52,4	52,7	52,3			28 . 43 . 54,72	G.

Runs taken April 4, 22h. (Temp. 53°.)
Coincidences at the five wires taken April 9, 1h.

(*a*) At the five wires.
(*b*) Unsteady and faint.
(*c*) Dancing.
(*d*) Ill-defined limbs.
(*e*) Cloudy and doubtful.
(*f*) At 5th wire and comb. Much hurried.
(*g*) Exceedingly faint.
(*h*) Very cloudy.
(*i*) The shutters had not been long open.
(*k*) At the five wires. Badly defined and unsteady.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	23 . 57 . 56,83	30,092	39,0	37,5					61 . 38 . 17,88	☽.
	23 . 57 . 58,31								61 . 38 . 19,36	☽.
	23 . 57 . 57,82				26,75	22 . 23,85		15 . 9,87	61 . 38 . 18,87	☽.
	23 . 57 . 57,76								61 . 38 . 18,81	☽.
	23 . 57 . 56,86								61 . 38 . 17,91	☽.
	56 . 44 . 9,09	29,920	38,6	38,2	1 . 30,88	18,74	7,944	23,05	94 . 32 . 52,56	Venus.
	47 . 35 . 47,17	29,888	42,8	44,0	1 . 4,52	6,30		16 . 0,60	85 . 7 . 53,07	☉.
	47 . 3 . 48,11				1 . 3,33	6,25			85 . 7 . 54,07	☉.
54,02	− 36 . 13 . 14,70				43,19				1 . 33 . 10,39	Polaris R.
	− 36 . 13 . 14,69								1 . 33 . 10,40	Polaris.
55,01	− 9 . 40 . 41,27	29,882	39,0	37,6	10,19				28 . 6 . 16,82	*α* Cephei R.
	− 9 . 40 . 39,28								28 . 6 . 18,81	*α* Cephei.
54,38	− 17 . 37 . 31,83				18,99				20 . 9 . 17,46	*β* Cephei R.
	− 17 . 37 . 31,09								20 . 9 . 18,20	*β* Cephei.
	56 . 49 . 0,59	29,888	39,6	39,3	1 . 30,85	18,45	7,980	22,68	94 . 37 . 43,95	Venus.
	46 . 40 . 44,63	29,886	43,5	44,1	1 . 2,47	6,21		16 . 0,30	84 . 44 . 49,47	☉.
	47 . 12 . 46,87				1 . 3,64	6,26			84 . 44 . 52,23	☉.
55,14	− 36 . 13 . 15,86				43,18				1 . 33 . 9,24	Polaris R.
	− 36 . 13 . 13,61								1 . 33 . 11,49	Polaris.
	45 . 29 . 34,11				59,94	4,65			83 . 17 . 37,68	Mercury.
	46 . 49 . 50,65	29,844	51,0	52,8	1 . 1,61	6,22		16 . 0,00	84 . 21 . 54,32	☉.
	46 . 17 . 54,82				1 . 0,48	6,17			84 . 21 . 57,41	☉.
54,06	7 . 30 . 50,81	29,900	47,6	47,9	7,72				45 . 18 . 6,81	*α* Cygni R.
	7 . 30 . 50,90								45 . 18 . 6,90	*α* Cygni.
53,26	− 9 . 40 . 39,05		48,6	49,6	9,95				28 . 6 . 19,28	*α* Cephei R.
	− 9 . 40 . 40,56								28 . 6 . 17,77	*α* Cephei.
53,43	− 17 . 37 . 30,90				18,54				20 . 9 . 18,84	*β* Cephei R.
	− 17 . 37 . 32,06								20 . 9 . 17,68	*β* Cephei.
	56 . 56 . 17,16	29,894	51,5	52,5	1 . 28,85	17,89	8,047	22,03	94 . 44 . 58,43	Venus.
	45 . 55 . 5,25	29,872	54,4	55,8	59,37	6,13		15 . 59,70	83 . 59 . 6,47	☉.
	46 . 27 . 2,44				1 . 0,48	6,18			83 . 59 . 5,32	☉.
	43 . 2 . 2,67	29,072	46,8	45,4	53,37	1,27	8,108	20,94	80 . 50 . 23,99	Jupiter.
54,19	− 10 . 24 . 29,49				10,51				27 . 22 . 28,28	*α* Ursæ Maj. R.
	− 10 . 24 . 29,13								27 . 22 . 28,64	*α* Ursæ Majoris.
	40 . 46 . 54,77	29,052	46,4	45,0	49,32				78 . 34 . 52,37	*ι* Leonis.
	52 . 7 . 35,44			44,8	1 . 13,47				89 . 55 . 57,19	*υ* Leonis.
	48 . 40 . 59,77	29,042	45,6	44,3					86 . 3 . 31,72	☽.
	48 . 40 . 59,15								86 . 3 . 31,10	☽.
	48 . 40 . 58,57				1 . 5,08	40 . 25,68		14 . 44,27	86 . 3 . 30,52	☽.
	48 . 40 . 58,84								86 . 3 . 30,79	☽.
	48 . 40 . 59,85								86 . 3 . 31,80	☽.
	47 . 38 . 31,99				1 . 2,75				85 . 26 . 43,02	*b* Virginis.
	52 . 5 . 0,71	29,024	45,0	44,2	1 . 13,38				89 . 53 . 22,37	*n* Virginis.

Coincidence of Micrometer Wire with fixed Wire = $10^r,110$, $10^r,111$, $10^r,116$, $10^r,122$, $10^r,127$ at the five wires.
From April 7 = $10^r,110$, $10^r,109$, $10^r,116$, $10^r,121$, $10^r,126$.
One Micrometer Revolution = 20″,855.
Correction for Runs = + 3″,5. From April 4 = − 0″,9.
Adopted Zenith Point = 336° . 38′ . 54″,01.
Assumed Co-latitude = 37° . 47′ . 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes. A	B	C	D	E	F	Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
April 7	γ Virginis.........	29 . 20	4 . 26,3	16,4	18,0	15,6	15,3	16,1			29 . 24 . 17,82	G.
	θ Virginis.........	33 . 30	0 . 60,2	50,4	51,0	50,0	50,3	51,0			33 . 30 . 52,12	G.
April 8	(a) n Virginis M.	28 . 40	0 . 20,7	11,0	11,7	11,0	8,9	11,0	89,578	+3 . 39,75	28 . 43 . 52,13	G.
	η Virginis M.	28 . 40	0 . 20,7	11,0	11,7	11,0	8,9	11,0	20,308	-3 . 32,54	28 . 36 . 39,84	G.
	(b) ☽ N.L.	31 . 15	0 . 23,8	13,2	16,0	13,4	11,8	13,7		+ 8,12	31 . 15 . 23,44	G.
	☽ N.L. M..........	31 . 15	0 . 23,8	13,2	16,0	13,4	11,8	13,7	9,920	+ 3,94 + 4,06	31 . 15 . 23,32	G.
	☽ N.L. M..........	31 . 15	0 . 23,8	13,2	16,0	13,4	11,8	13,7	9,734	+ 7,97	31 . 15 . 23,29	G.
	☽ N.L. M..........	31 . 15	0 . 23,8	13,2	16,0	13,4	11,8	13,7	9,568	+ 11,53 - 4,06	31 . 15 . 22,79	G.
	☽ N.L. M..........	31 . 15	0 . 23,8	13,2	16,0	13,4	11,8	13,7	9,350	+ 16,19 - 8,12	31 . 15 . 23,39	G.
	γ Virginis.........	29 . 20	4 . 24,4	13,2	17,0	12,4	12,6	13,9			29 . 24 . 15,52	G.
	ψ Virginis	37 . 25	4 . 49,7	39,2	40,1	37,3	37,8	38,0			37 . 29 . 40,27	G.
April 9	(c) Jupiter N.L......	19 . 35	2 . 41,4	31,8	34,8	30,7	33,0	31,5			19 . 37 . 33,82	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 15,0	5,0	9,1	4,8	5,4	3,7	9,277	+ 17,50	167 . 3 . 24,62	G.
	α Ursæ Majoris...	326 . 10	4 . 33,1	22,0	25,0	21,8	22,6	21,6			326 . 14 . 24,28	G.
	ι Leonis...........	17 . 25	0 . 55,0	43,7	47,2	43,8	45,0	43,4			17 . 25 . 46,33	G.
	(d) ☽ N.L. M..........	37 . 10	2 . 26,8	16,0	17,8	14,6	14,9	15,7	17,427	-2 . 32,58 + 8,04	37 . 9 . 53,06	G.
	☽ N.L. M..........	37 . 10	2 . 26,8	16,0	17,8	14,6	14,9	15,7	17,240	-2 . 28,71 + 4,02	37 . 9 . 52,91	G.
	(e) ☽ S.L..............	37 . 35	4 . 64,0	52,9	55,9	53,4	53,4	54,0			37 . 39 . 55,60	G.
	☽ S.L. M...........	37 . 35	4 . 64,0	52,9	55,9	53,4	53,4	54,0	9,950	+ 3,57 - 4,02	37 . 39 . 55,15	G.
	☽ S.L. M..........	37 . 35	4 . 64,0	52,9	55,9	53,4	53,4	54,0	9,774	+ 7,34 - 8,04	37 . 39 . 54,90	G.
	Spica R. M.	94 . 10	0 . 22,4	9,8	14,3	11,8	11,2	11,4	13,855	-1 . 17,97	94 . 8 . 55,51	G.
	Spica............	39 . 5	3 . 61,8	51,7	54,9	50,2	52,4	51,0			39 . 8 . 53,60	G.
April 10	(f) ι Cephei SP. R. M.	219 . 0	4 . 23,2	14,3	13,0	13,3	16,2	13,2	12,428	- 48,21	219 . 3 . 27,26	G.
	ι Cephei SP	274 . 10	4 . 29,8	20,0	20,3	20,8	19,0	19,7			274 . 14 . 21,53	G.
	Jupiter S.L.......	19 . 35	1 . 48,9	40,0	40,0	39,8	43,4	38,5			19 . 36 . 41,73	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 21,8	13,7	15,4	11,8	15,0	11,7	9,704	+ 8,59	167 . 3 . 23,44	G.
	α Ursæ Majoris...	326 . 10	4 . 31,8	21,9	22,5	21,8	23,2	20,5			326 . 14 . 23,55	G.
	ι Leonis..........	17 . 25	0 . 54,3	45,0	45,3	44,0	46,8	43,9			17 . 25 . 46,62	G.
	υ Leonis	28 . 45	1 . 34,9	25,6	25,5	25,3	26,2	25,0			28 . 46 . 27,07	G.
	γ Ursæ Maj. R. M.	159 . 0	2 . 26,8	17,4	19,4	17,7	19,0	16,4	11,818	- 35,49	159 . 1 . 43,93	G.
	γ Ursæ Majoris...	334 . 15	1 . 12,3	1,8	3,4	3,8	3,8	1,3			334 . 16 . 4,38	G.
	b Virginis........	24 . 15	2 . 32,0	22,5	24,0	21,4	24,7	21,2			24 . 17 . 24,27	G.
	n Virginis M.....	28 . 40	0 . 29,0	20,0	20,0	20,2	20,0	20,1	0,000	+3 . 30,96	28 . 43 . 52,51	G.
	η Virginis M.....	28 . 40	0 . 29,0	20,0	20,0	20,2	20,0	20,1	20,789	-3 . 42,57	28 . 36 . 38,98	G.
	Venus N.L.	33 . 35	2 . 42,2	36,0	33,6	34,3	35,3	33,2			33 . 37 . 35,72	G.
	(g) Polaris R. M.......	192 . 50	1 . 19,8	9,8	12,4	12,3	12,3	7,7	7,580	+ 52,88	192 . 52 . 5,25	G.
	Polaris	300 . 25	0 . 47,2	36,8	37,0	36,7	37,0	35,8			300 . 25 . 38,40	G.
April 11	⊙ N.L. M........	20 . 20	0 . 26,2	18,7	17,8	18,3	18,5	15,7	12,383	- 47,28	20 . 19 . 31,92	G.
	⊙ S.L.	20 . 50	1 . 34,5	27,2	26,7	27,5	28,8	24,5			20 . 51 . 28,18	G.
	(h) Mercury, center....	14 . 50	2 . 49,7	43,7	41,7	42,2	45,1	38,5			14 . 52 . 43,43	G.
	Arcturus R. M....	124 . 25	3 . 26,4	17,5	17,5	15,8	19,4	14,4	10,661	- 11,36	124 . 28 . 7,09	G.
	Arcturus..........	8 . 45	4 . 46,6	36,8	39,2	38,5	41,1	36,0			8 . 49 . 39,62	G.
	λ Virginis.........	41 . 25	2 . 21,2	11,2	12,0	12,4	13,3	11,4			41 . 27 . 13,55	G.

Runs taken April 9, 1ʰ. (Temp. 43°.)

(a) At comb, but correction insensible.

(b) At the five wires. Pretty good.

(c) Misty.

(d) At the five wires: very satisfactory. Both limbs full, by calculation.

(e) No correction for runs.

(f) Very good.

(g) Unsatisfactory, so much wind.

(h) Very misty.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	52 . 45 . 23,81	29,024	45,0	44,2	1 . 15,18				90 . 33 . 47,27	γ Virginis.
	56 . 51 . 58,11	28,998	44,8	44,5	1 . 27,37				94 . 40 . 33,76	θ Virginis.
	52 . 4 . 58,12	29,444	43,8	40,6	1 . 14,98				89 . 53 . 21,38	*n* Virginis.
	51 . 57 . 45,83				1 . 14,66				89 . 46 . 8,77	η Virginis.
	54 . 36 . 29,43		42,8	40,0					91 . 55 . 45,70	☽.
	54 . 36 . 29,31								91 . 55 . 45,58	☽.
	54 . 36 . 29,28				1 . 22,29	44 . 0,63		14 . 46,33	91 . 55 . 45,55	☽.
	54 . 36 . 28,78								91 . 55 . 45,05	☽.
	54 . 36 . 29,38								91 . 55 . 45,65	☽.
	52 . 45 . 21,51				1 . 16,92				90 . 33 . 46,71	γ Virginis.
	60 . 50 . 46,26	29,450	41,8	39,5	1 . 44,79				98 . 39 . 39,33	ψ Virginis.
	42 . 58 . 39,81	27,864	42,4	40,7	55,24	1,26	8,108	20,94	80 . 47 . 3,01	Jupiter.
54,45	– 10 . 24 . 30,61				10,90				27 . 22 . 26,77	α Ursæ Maj. R.
	– 10 . 24 . 29,73								27 . 22 . 27,65	α Ursæ Majoris.
	40 . 46 . 52,32	29,872	41,8	39,2	51,32				78 . 34 . 51,92	ι Leonis.
	60 . 30 . 59,05	29,880	40,0	38,3					97 . 47 . 25,77	☽.
	60 . 30 . 58,90				1 . 45,17	47 . 18,62			97 . 47 . 25,62	☽.
	61 . 1 . 1,59							14 . 51,89	97 . 47 . 32,46	☽.
	61 . 1 . 1,14				1 . 47,33	47 . 32,85			97 . 47 . 32,01	☽.
	61 . 1 . 0,89								97 . 47 . 31,76	☽.
54,56	62 . 29 . 58,50				1 . 54,15				100 . 19 . 0,93	Spica R.
	62 . 29 . 59,59								100 . 19 . 2,02	Spica.
54,39	– 62 . 24 . 33,25	30,038	50,5	49,2	1 . 51,75				– 24 . 39 . 16,72	ι Cephei SP. R.
	– 62 . 24 . 32,48								– 24 . 39 . 15,95	ι Cephei SP.
	42 . 57 . 47,72				54,57	1,26	12,100	20,69	80 . 45 . 28,62	Jupiter.
53,50	– 10 . 24 . 29,43				10,77				27 . 22 . 28,08	α Ursæ Maj. R.
	– 10 . 24 . 30,46								27 . 22 . 27,05	α Ursæ Majoris.
	40 . 46 . 52,61				50,55				78 . 34 . 51,44	ι Leonis.
	52 . 7 . 33,06				1 . 15,27				89 . 55 . 56,61	υ Leonis.
54,16	– 2 . 22 . 49,92				2,44				35 . 24 . 15,92	γ Ursæ Maj. R.
	– 2 . 22 . 49,63								35 . 24 . 16,21	γ Ursæ Majoris.
	47 . 38 . 30,26				1 . 4,24				85 . 26 . 42,78	*b* Virginis.
	52 . 4 . 58,50		49,4	48,8	1 . 15,22				89 . 53 . 22,00	*n* Virginis.
	51 . 57 . 44,97				1 . 14,89				89 . 46 . 8,14	η Virginis.
	56 . 58 . 41,71	30,060	50,8	53,5	1 . 29,30	16,24	8,263	19,85	94 . 47 . 22,90	Venus.
51,83	– 36 . 13 . 11,24	30,054	60,2	60,9	41,96				1 . 33 . 15,08	Polaris R.
	– 36 . 13 . 15,61								1 . 33 . 10,71	Polaris.
	43 . 40 . 37,91	30,050	60,4	61,6	54,60	5,88		15 . 58,10	81 . 44 . 33,01	☉.
	44 . 12 . 34,17				55,62	5,93			81 . 44 . 34,04	☉.
	38 . 13 . 49,42	30,038	61,2	62,4	44,97	4,46			76 . 1 . 38,21	Mercury.
53,36	32 . 10 . 46,92	30,000	49,5	47,4	36,98				69 . 58 . 32,18	Arcturus R.
	32 ..10 . 45,61								69 . 58 . 30,87	Arcturus.
	64 . 48 . 19,54				2 . 4,31				102 . 37 . 32,13	λ Virginis.

Coincidence of Micrometer Wire with fixed Wire = 10ʳ,110, 10ʳ,109, 10ʳ,116, 10ʳ,121, 10ʳ,126 at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = – 0″,9. From April 8 = – 0″,5.
Adopted Zenith Point = 336° . 38′ . 54″,01.
Assumed Co-latitude = 37° . 47′ . 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
April 11	(*a*) ☽ S.L.	48 . 30	2 . 60,4	51,0	50,4	51,0	53,4	49,7		+ 7,04	48 . 32 . 59,64	G.
	☽ S.L. M.	48 . 30	2 . 60,4	51,0	50,4	51,0	53,4	49,7	9,920	+ 3,94 + 3,52	48 . 33 . 0,06	G.
	☽ S.L. M.	48 . 30	2 . 60,4	51,0	50,4	51,0	53,4	49,7	9,776	+ 7,09	48 . 32 . 59,69	G.
	☽ S.L. M.	48 . 30	2 . 60,4	51,0	50,4	51,0	53,4	49,7	9,560	+ 11,70 − 3,52	48 . 33 . 0,78	G.
	☽ S.L. M.	48 . 30	2 . 60,4	51,0	50,4	51,0	53,4	49,7	9,364	+ 15,89 − 7,04	48 . 33 . 1,45	G.
	β Ursæ Min. R. M.	179 . 10	4 . 16,8	9,2	9,7	7,8	11,3	5,8	9,458	+ 13,72	179 . 14 . 23,75	G.
	β Ursæ Minoris	314 . 0	3 . 32,0	22,2	22,0	23,2	23,3	22,0			314 . 3 . 24,07	G.
	ι^1 Libræ	47 . 55	4 . 37,4	28,1	27,0	26,3	31,6	26,8			47 . 59 . 29,47	G.
	β Libræ R. M.	95 . 35	4 . 16,4	6,0	7,8	6,6	9,7	4,0	5,505	+1 . 36,16	95 . 40 . 44,51	G.
	β Libræ	37 . 35	1 . 68,7	59,4	59,7	60,3	61,5	58,0			37 . 37 . 1,23	G.
	Venus N.L.	33 . 35	0 . 24,9	14,2	16,0	15,0	15,3	14,6			33 . 35 . 16,67	G.
April 12	(*b*) ⊙ S.L. M.	20 . 30	0 . 24,8	14,8	16,0	15,8	16,0	13,4	12,334	− 46,26	20 . 29 . 30,54	G.
	⊙ N.L.	19 . 55	2 . 43,4	34,5	34,9	33,7	35,8	31,8			19 . 57 . 35,63	G.
	Castor R. M.	136 . 40	1 . 16,0	4,8	8,5	5,9	6,4	3,4	11,080	− 20,10	136 . 40 . 47,38	G.
	Castor	356 . 35	1 . 70,4	59,2	62,8	61,0	62,0	57,3			356 . 37 . 2,08	G.
	Procyon R. M.	110 . 5	1 . 22,8	12,0	11,8	12,2	11,2	9,3	13,068	−1 . 1,56	110 . 5 . 13,31	G.
	Procyon	23 . 10	2 . 46,3	36,0	37,3	35,0	36,8	35,0			23 . 12 . 37,68	G.
	Pollux R. M.	132 . 50	1 . 30,8	18,0	19,8	18,9	19,7	16,2	10,224	− 2,26	132 . 51 . 18,29	G.
	Pollux	0 . 25	1 . 36,8	26,8	28,4	27,4	28,9	26,0			0 . 26 . 29,03	G.
	Jupiter S.L.	19 . 30	3 . 54,0	43,8	46,1	41,8	45,8	41,4			19 . 33 . 45,42	G.
	ψ Virginis	37 . 25	4 . 50,2	38,0	40,6	35,8	38,3	36,8			37 . 29 . 39,87	G.
April 16	(*c*) ⊙ S.L. M.	19 . 0	3 . 20,2	8,9	13,3	7,0	8,7	6,8	10,350	− 4,88	19 . 3 . 5,89	G.
	⊙ N.L.	18 . 30	1 . 22,9	10,2	15,0	10,8	10,2	10,0			18 . 31 . 13,17	G.
	(*d*) Regulus R. M.	117 . 10	2 . 18,2	7,0	10,5	5,8	6,6	3,7	9,918	+ 4,13	117 . 12 . 12,73	G.
	Regulus	16 . 5	0 . 46,4	36,0	38,5	36,4	38,4	35,8			16 . 5 . 38,57	G.
	γ Leonis	8 . 10	1 . 49,2	36,0	42,3	37,4	38,2	37,3			8 . 11 . 40,03	G.
	Jupiter S.L.	19 . 25	3 . 46,2	34,5	39,8	33,6	37,1	34,1			19 . 28 . 37,48	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 46,2	37,0	41,3	34,8	39,7	34,0	10,724	− 12,68	167 . 3 . 26,09	G.
	α Ursæ Majoris	326 . 10	4 . 33,2	22,3	25,5	22,5	24,0	21,8			326 . 14 . 24,82	G.
	Polaris SP. R. M.	195 . 55	3 . 28,5	18,0	21,9	17,3	20,4	15,4	9,680	+ 9,09	195 . 58 . 29,29	G.
	Polaris SP.	297 . 15	4 . 30,0	18,6	22,0	17,8	17,3	17,0			297 . 19 . 20,38	G.
April 17	(*b*) Jupiter N.L.	19 . 25	1 . 58,0	46,4	52,4	46,6	49,0	46,4			19 . 26 . 49,77	G.
April 19	Jupiter N.L.	19 . 20	4 . 55,5	46,8	50,7	44,7	49,8	44,1			19 . 24 . 48,52	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 49,8	42,0	45,8	39,4	43,3	38,9	10,922	− 16,81	167 . 3 . 26,32	G.
	α Ursæ Majoris	326 . 10	4 . 30,6	20,2	23,2	20,4	22,8	19,6			326 . 14 . 22,73	G.
April 21	Jupiter N.L.	19 . 20	3 . 10,2	2,3	5,3	0,5	5,4	0,4			19 . 23 . 3,97	G.
	(*e*) γ Ursæ Maj. R. M.	159 . 0	2 . 16,8	7,2	12,0	8,2	9,4	7,2	11,225	− 23,13	159 . 1 . 46,97	G.
	(*f*) γ Ursæ Majoris	334 . 15	1 . 9,8	0,0	3,8	0,8	4,4	0,0		+ 0,21	334 . 16 . 3,33	G.
	b Virginis	24 . 15	2 . 30,9	22,6	25,4	20,0	24,9	20,5			24 . 17 . 24,02	G.
	Polaris SP. R. M.	195 . 55	3 . 25,0	15,7	19,0	14,4	19,4	13,8	9,479	+ 13,28	195 . 58 . 31,11	G.
	Polaris SP.	297 . 15	4 . 25,4	16,3	16,8	14,0	14,3	14,2			297 . 19 . 16,77	G.
	ε Cassiopeiæ SP. R. M.	221 . 30	4 . 24,3	16,2	16,5	13,7	16,2	13,9	17,098	−2 . 25,60	221 . 31 . 51,13	G.
	ε Cassiopeiæ SP.	271 . 45	0 . 66,8	57,4	60,4	57,0	58,0	57,0			271 . 45 . 59,42	G.
	(*e*) β Ursæ Min. R. M.	179 . 10	4 . 13,0	4,8	8,8	3,9	8,2	2,8	9,120	+ 20,78	179 . 14 . 27,63	G.
	β Ursæ Minoris	314 . 0	3 . 29,0	18,3	20,5	18,2	19,8	18,3			314 . 3 . 20,63	G.

Runs taken April 22, 23^{h}, with the same result as the last. (Temp. 50°.)
Coincidence at the middle Wire found at the same time to be 10^{r},117. The preceding coincidences are therefore continued.

(*a*) At the five wires. Uneven and unsteady.
(*b*) Cloudy. (*c*) Misty.
(*d*) Blur: too much wind.
(*e*) Wind disturbed the mercury.
(*f*) At the 4^{th} wire.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	71 . 54 . 5,63	30,000	48,5	46,4					108 . 36 . 41,47	☽.
	71 . 54 . 6,05								108 . 36 . 41,89	☽.
	71 . 54 . 5,68				2 . 58,32	52 . 26,25		15 . 4,51	108 . 36 . 41,52	☽.
	71 . 54 . 6,77								108 . 36 . 42,61	☽.
	71 . 54 . 7,44								108 . 36 . 43,28	☽.
53,91	– 22 . 35 . 29,74				24,51				15 . 11 . 14,03	β Ursæ Min. R.
	– 22 . 35 . 29,94								15 . 11 . 13,83	β Ursæ Minoris.
	71 . 20 . 35,46				2 . 52,72				109 . 10 . 36,46	ι^1 Libræ.
52,87	60 . 58 . 9,50				1 . 45,75				98 . 47 . 3,53	β Libræ R.
	60 . 58 . 7,22								98 . 47 . 1,25	β Libræ.
	56 . 56 . 22,66	30,092	49,4	48,5	1 . 30,15	15,97	8,242	20,10	94 . 45 . 5,22	Venus.
	43 . 50 . 36,53	30,100	51,4	51,8	56,10	5,89		15 . 57,90	81 . 22 . 37,12	☉.
	43 . 18 . 41,62				55,07	5,83			81 . 22 . 37,04	☉.
54,73	19 . 58 . 6,63	30,118	51,4	49,9	21,34				57 . 45 . 36,25	Castor R.
	19 . 58 . 8,07								57 . 45 . 37,69	Castor.
55,50	46 . 33 . 40,70				1 . 1,94				84 . 21 . 50,92	Procyon R.
	46 . 33 . 43,67								84 . 21 . 53,89	Procyon.
53,66	23 . 47 . 35,72				25,89				61 . 35 . 9,89	Pollux R.
	23 . 47 . 35,02								61 . 35 . 9,19	Pollux.
	42 . 54 . 51,41	30,138	45,8	44,0	55,24	1,25	12,080	20,49	80 . 42 . 33,19	Jupiter.
	60 . 50 . 45,86	30,146	43,4	41,7	1 . 46,76				98 . 39 . 40,90	ψ Virginis.
	42 . 24 . 11,88	29,546	42,6	40,0	53,64	5,73		15 . 56,80	79 . 56 . 11,27	☉.
	41 . 52 . 19,16				52,65	5,67			79 . 56 . 11,22	☉.
55,65	39 . 26 . 41,28	29,472	39,5	37,6	48,46				77 . 14 . 38,02	Regulus R.
	39 . 26 . 44,56								77 . 14 . 41,30	Regulus.
	31 . 32 . 46,02				36,18				69 . 20 . 30,48	γ Leonis.
	42 . 49 . 43,47	29,466	39,0	36,7	54,68	1,24	12,102	20,71	80 . 37 . 24,48	Jupiter.
55,46	– 10 . 24 . 32,08				10,85				27 . 22 . 25,35	α Ursæ Maj. R.
	– 10 . 24 . 29,19								27 . 22 . 28,24	α Ursæ Majoris.
54,84	– 39 . 19 . 35,28		37,5	35,8	48,43				– 1 . 33 . 15,43	Polaris SP. R.
	– 39 . 19 . 33,63								– 1 . 33 . 13,78	Polaris SP.
	42 . 47 . 55,76	29,600	41,0	39,0	54,61	1,23	8,190	20,08	80 . 36 . 17,50	Jupiter.
	42 . 45 . 54,51	29,654	39,8	37,2	54,84	1,23	8,178	20,21	80 . 34 . 16,61	Jupiter.
54,53	– 10 . 24 . 32,31				10,90				27 . 22 . 25,07	α Ursæ Maj. R.
	– 10 . 24 . 31,28								27 . 22 . 26,10	α Ursæ Majoris.
	42 . 44 . 9,96	29,362	41,7	40,2	53,92	1,22	8,190	20,08	80 . 32 . 31,02	Jupiter.
55,15	– 2 . 22 . 52,96	29,350	39,8	38,5	2,44				35 . 24 . 12,88	γ Ursæ Maj. R.
	– 2 . 22 . 50,68								35 . 24 . 15,16	γ Ursæ Majoris.
	47 . 38 . 30,01				1 . 4,18				85 . 26 . 42,47	b Virginis.
53,94	– 39 . 19 . 37,10	29,322	38,4	36,5	48,12				– 1 . 33 . 16,94	Polaris SP. R.
	– 39 . 19 . 37,24								– 1 . 33 . 17,08	Polaris SP.
55,27	– 64 . 52 . 57,12	29,306	37,5	35,8	2 . 4,86				– 27 . 7 . 53,70	ε Cassiop. SP. R.
	– 64 . 52 . 54,59								– 27 . 7 . 51,17	ε Cassiopeiæ SP.
54,13	– 22 . 35 . 33,62	29,262	37,3	36,2	24,42				15 . 11 . 10,24	β Ursæ Min. R.
	– 22 . 35 . 33,38								15 . 11 . 10,48	β Ursæ Minoris.

Coincidence of Micrometer Wire with fixed Wire = 10r,116, at middle Wire.
One Micrometer Revolution = 20″,855.
Correction for Runs = – 0″,5.
Adopted Zenith Point = 336°. 38′. 54″,01.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
April 23	β Ursæ Min. R. M.	179 . 15	0 . 24,8	15,4	16,8	16,2	17,2	15,5	12,416	− 47,96	179 . 14 . 29,69	G.
	β Ursæ Minoris....	314 . 0	3 . 28,7	20,1	18,7	17,6	19,8	18,4			314 . 3 . 20,50	G.
	(*a*) ι^1 Libræ..........	47 . 55	4 . 40,4	32,8	32,0	28,8	33,5	29,4		− 0,22	47 . 59 . 32,53	G.
	β Libræ R. M.....	95 . 35	4 . 22,8	15,1	14,3	11,9	14,7	11,2	5,858	+1 . 28,80	95 . 40 . 43,73	G.
	β Libræ..........	37 . 35	2 . 13,1	5,4	5,0	3,0	5,3	2,8			37 . 37 . 5,73	G.
	α Cor. Bor. R. M..	131 . 40	2 . 13,8	6,9	6,5	2,8	4,9	3,0	10,256	− 2,92	131 . 42 . 3,36	G.
	α Coronæ Borealis.	1 . 35	0 . 53,1	43,8	45,5	42,7	45,1	42,4			1 . 35 . 45,42	G.
	α Serpentis R. M..	111 . 20	2 . 23,0	13,2	14,0	11,8	13,6	11,0	7,550	+ 53,50	111 . 23 . 7,90	G.
	α Serpentis	21 . 50	4 . 46,8	39,3	38,7	34,1	38,8	35,8			21 . 54 . 38,83	G.
	ζ Ursæ Min. R. M.	182 . 40	4 . 26,6	18,9	19,0	17,0	19,0	16,7	15,044	−1 . 42,78	182 . 42 . 36,69	G.
	ζ Ursæ Minoris...	310 . 35	0 . 20,6	9,5	11,0	9,4	8,4	10,2			310 . 35 . 11,52	G.
April 24	(*b*) Regulus R........	117 . 10	2 . 18,8	10,4	9,5	8,3	7,7	6,3			117 . 12 . 10,13	G.
	Regulus..........	16 . 5	0 . 43,8	37,8	35,0	35,0	36,8	34,0			16 . 5 . 37,05	G.
	γ Leonis.........	8 . 10	1 . 45,9	38,5	39,3	37,3	39,4	35,6			8 . 11 . 39,30	G.
	Jupiter S.L.......	19 . 20	1 . 45,2	38,5	36,8	35,2	37,4	35,0			19 . 21 . 37,98	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 47,2	40,5	40,0	36,8	39,5	36,5	10,763	− 13,49	167 . 3 . 26,53	G.
	α Ursæ Majoris...	326 . 10	4 . 28,4	21,1	20,8	18,4	21,1	17,4			326 . 14 . 21,13	G.
	ψ Virginis........	37 . 25	4 . 49,7	43,8	41,6	39,2	41,8	38,8			37 . 29 . 42,40	G.
	Polaris SP. R. M...	195 . 55	3 . 30,8	25,2	22,5	20,7	22,7	19,8	9,803	+ 6,53	195 . 58 . 30,10	G.
	Polaris SP.........	297 . 15	4 . 25,5	17,9	16,0	13,5	14,0	13,1			297 . 19 . 16,60	G.
	(*c*) Spica R. M.......	94 . 5	3 . 29,8	21,5	20,8	19,2	20,3	16,9	8,658	+ 30,41	94 . 8 . 51,78	G.
	Spica............	39 . 5	3 . 63,7	57,0	56,2	51,7	56,4	51,9			39 . 8 . 56,08	G.
	(*d*) Arcturus R. M....	124 . 25	3 . 32,8	26,0	24,6	21,3	23,8	20,8	10,882	− 15,97	124 . 28 . 8,86	G.
	Arcturus.........	8 . 45	4 . 47,0	39,8	40,0	36,3	38,3	34,7			8 . 49 . 39,27	G.
	λ Virginis........	41 . 25	2 . 23,2	15,3	14,4	11,1	12,8	11,4			41 . 27 . 14,67	G.
	(*e*) Saturn S.L.	46 . 5	0 . 38,0	29,8	29,2	25,8	29,0	28,7			46 . 5 . 30,08	G.
April 27	(*f*) Jupiter S.L.......	19 . 20	0 . 15,7	6,9	9,4	5,6	7,2	5,1		+ 0,25	19 . 20 . 8,57	G.
	θ Virginis........	33 . 30	0 . 56,6	46,4	48,0	45,0	48,0	46,4			33 . 30 . 48,38	G.
	Spica R. M.......	94 . 5	3 . 30,9	19,2	21,6	18,7	21,0	18,4	8,579	+ 32,05	94 . 8 . 53,63	G.
	Spica............	39 . 5	3 . 63,5	54,7	56,4	51,3	54,8	52,7			39 . 8 . 55,50	G.
	η Ursæ Maj. R. M.	154 . 30	4 . 18,3	8,7	11,9	6,4	9,4	7,3	12,224	− 43,96	154 . 33 . 26,31	G.
	η Ursæ Majoris...	338 . 40	4 . 33,0	23,0	26,4	21,9	22,5	22,0			338 . 44 . 24,73	G.
	Arcturus R. M....	124 . 25	4 . 18,2	7,5	10,0	5,5	5,8	4,8	12,928	− 58,64	124 . 28 . 9,93	G.
	Arcturus.........	8 . 45	4 . 45,7	37,0	39,4	35,7	38,2	34,7			8 . 49 . 38,37	G.
	λ Virginis........	41 . 25	2 . 20,8	12,3	13,7	10,1	11,0	10,8			41 . 27 . 13,08	G.
	(*g*) α^2 Libræ R. M....	89 . 0	3 . 30,3	18,7	22,0	17,5	20,0	18,3	1,404	+3 . 1,68	89 . 6 . 22,76	G.
	α^2 Libræ.........	44 . 10	1 . 38,5	29,2	29,2	26,4	28,7	29,4			44 . 11 . 30,20	G.
	(*h*) β Ursæ Min. R. M.	179 . 10	4 . 19,0	10,0	12,8	7,8	9,8	7,3	9,238	+ 18,32	179 . 14 . 29,37	G.
	β Ursæ Minoris...	314 . 0	3 . 27,5	17,7	18,9	15,8	16,2	15,6			314 . 3 . 18,57	G.
	Saturn N.L.......	46 . 0	2 . 28,5	17,2	20,0	15,7	18,8	19,0			46 . 2 . 19,83	G.
April 28	(*i*) ☉ S.L. M.........	15 . 0	2 . 18,0	9,2	10,4	8,8	9,5	6,5	13,430	−1 . 9,11	15 . 1 . 1,26	G.
	☉ N.L............	14 . 25	4 . 26,0	16,4	19,0	15,3	16,8	13,2			14 . 29 . 17,72	G.
May 1	(*k*) ☽ N.L.............	7 . 45	1 . 45,3	37,2	37,0	36,4	39,5	34,3		+ 6,12	7 . 46 . 44,19	G.
	☽ N.L. M..........	7 . 45	1 . 45,3	37,2	37,0	36,4	39,5	34,3	9,966	+ 2,71 + 3,06	7 . 46 . 43,84	G.
	☽ N.L. M..........	7 . 45	1 . 45,3	37,2	37,0	36,4	39,5	34,3	9,830	+ 5,70	7 . 46 . 43,77	G.
	☽ N.L. M..........	7 . 45	1 . 45,3	37,2	37,0	36,4	39,5	34,3	9,704	+ 8,40 − 3,06	7 . 46 . 43,41	G.
	☽ N.L. M..........	7 . 45	1 . 45,3	37,2	37,0	36,4	39,5	34,3	9,520	+ 12,36 − 6,12	7 . 46 . 44,31	G.

Coincidences at the five wires and Runs taken May 2, 1h. (Temp. 62°.)
The change of Zenith Point has been gradual.

(*a*) At the 5th wire.
(*b*) Accidental bisection by the fixed wire. (*c*) Very good.
(*d*) Blur, owing to wind. (*e*) Unsteady.
(*f*) At the comb. Correction for change of N.P.D. insensible.

(*g*) Cloudy. Not used in determining the Zenith Point.
(*h*) Mercury disturbed by wind.
(*i*) Both limbs without dark glass: doubtful.
(*k*) At the five wires: very cloudy and doubtful.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
55,10	- 22 . 35 . 35,68	29,272	44,0	42,3	24,12				15 . 11 . 8,48	β Ursæ Min. R.
	- 22 . 35 . 33,51								15 . 11 . 10,65	β Ursæ Minoris.
	71 . 20 . 38,52				2 . 50,01				109 . 10 . 36,81	ι^1 Libræ.
54,73	60 . 58 . 10,28				1 . 44,07				98 . 47 . 2,63	β Libræ R.
	60 . 58 . 11,72								98 . 47 . 4,07	β Libræ.
54,39	24 . 56 . 50,65		43,4	41,5	27,01				62 . 44 . 25,94	α Coron. Bor. R.
	24 . 56 . 51,41								62 . 44 . 26,70	α Coronæ Bor.
53,37	45 . 15 . 46,11				58,54				83 . 3 . 52,93	α Serpentis R.
	45 . 15 . 44,82								83 . 3 . 51,64	α Serpentis.
54,11	- 26 . 3 . 42,68				28,40				11 . 42 . 57,20	ζ Ursæ Min. R.
	- 26 . 3 . 42,49								11 . 42 . 57,39	ζ Ursæ Minoris.
53,59	39 . 26 . 43,88	29,600	45,8	46,3	47,81				77 . 14 . 39,97	Regulus R.
	39 . 26 . 43,04								77 . 14 . 39,13	Regulus.
	31 . 32 . 45,29				35,69				69 . 20 . 29,26	γ Leonis.
	42 . 42 . 43,97	29,594	46,0	45,0	53,76	1,21	12,060	20,27	80 . 30 . 24,53	Jupiter.
53,83	- 10 . 24 . 32,52				10,71				27 . 22 . 25,05	α Ursæ Maj. R.
	- 10 . 24 . 32,88								27 . 22 . 24,69	α Ursæ Majoris.
	60 . 50 . 48,39	29,612	43,4	41,7	1 . 44,88				98 . 39 . 41,55	ψ Virginis.
53,35	- 39 . 19 . 36,09				48,07				- 1 . 33 . 15,88	Polaris SP. R.
	- 39 . 19 . 37,41								- 1 . 33 . 17,20	Polaris SP.
53,93	62 . 30 . 2,23			40,7	1 . 52,55				100 . 19 . 3,06	Spica R.
	62 . 30 . 2,07								100 . 19 . 2,90	Spica.
54,07	32 . 10 . 45,15	29,626	41,8	39,4	37,13				69 . 58 . 30,56	Arcturus R.
	32 . 10 . 45,26								69 . 58 . 30,67	Arcturus.
	64 . 48 . 20,66				2 . 4,83				102 . 37 . 33,77	λ Virginis.
	69 . 26 . 36,07		40,0	37,2	2 . 36,85	0,89	11,012	9,35	107 . 16 . 10,96	Saturn.
	42 . 41 . 14,56	29,824	41,0	39,7	54,73	1,20	12,008	19,60	80 . 28 . 56,77	Jupiter.
	56 . 51 . 54,37	29,820	39,6	38,0	1 . 31,05				94 . 40 . 33,70	θ Virginis.
54,56	62 . 30 . 0,38				1 . 53,99				100 . 19 . 2,65	Spica R.
	62 . 30 . 1,49								100 . 19 . 3,76	Spica.
55,52	2 . 5 . 27,70		38,5	37,0	2,18				39 . 52 . 38,16	η Ursæ Maj. R.
	2 . 5 . 30,72								39 . 52 . 41,18	η Ursæ Majoris.
54,15	32 . 10 . 44,08			36,5	37,60				69 . 58 . 29,96	Arcturus R.
	32 . 10 . 44,36								69 . 58 . 30,24	Arcturus.
	64 . 48 . 19,07				2 . 6,41				102 . 37 . 33,76	λ Virginis.
56,48	67 . 32 . 31,25	29,816	37,6	35,8	2 . 33,85				105 . 22 . 3,38	α^2 Libræ R.
	67 . 32 . 36,19								105 . 22 . 8,32	α^2 Libræ.
53,97	- 22 . 35 . 35,36				24,90				15 . 11 . 8,02	β Ursæ Min. R.
	- 22 . 35 . 35,44								15 . 11 . 7,94	β Ursæ Minoris.
	69 . 23 . 25,82		37,0	35,5	2 . 38,00	0,89	9,234	9,20	107 . 13 . 20,41	Saturn.
	38 . 22 . 7,25	29,750	44,4	44,4	46,42	5,25		15 . 53,70	75 . 54 . 3,00	⊙.
	37 . 50 . 23,71				45,55	5,19			75 . 54 . 6,05	⊙.
	31 . 7 . 50,94	29,516	53,5	54,2					68 . 42 . 24,74	☽.
	31 . 7 . 50,59								68 . 42 . 24,39	☽.
	31 . 7 . 50,52				34,45	28 . 1,89		14 . 52,96	68 . 42 . 24,32	☽.
	31 . 7 . 50,16								68 . 42 . 23,96	☽.
	31 . 7 . 51,06								68 . 42 . 24,86	☽.

Coincidence of Micrometer Wire with fixed Wire = $10^r,116$ at middle Wire. From May 1 = $10^r,092$, $10^r,096$, $10^r,103$, $10^r,107$, $10^r,113$ at the five wires.

One Micrometer Revolution = 20″,855.

Correction for Runs = - 0″,5. From May 1 = - 4″,1.

Adopted Zenith Point = 336°. 38′. 54″,01. From May 1 = 336°. 38′. 53″,25.

Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
May 1	Polaris SP. R. M.	195 . 55	3 . 18,9	8,0	9,3	7,0	8,8	6,4	8,955	+ 23,95	195 . 58 . 33,25	G.
	Polaris SP.	297 . 15	4 . 22,8	11,0	11,8	10,3	10,5	10,7			297 . 19 . 12,27	G.
	Arcturus R. M.	124 . 25	3 . 27,8	17,4	17,1	15,7	17,0	15,0	10,598	− 10,31	124 . 28 . 7,57	G.
	Arcturus	8 . 45	4 . 46,0	36,3	37,0	35,2	38,3	34,2			8 . 49 . 37,20	G.
	Saturn N.L.	45 . 55	3 . 40,8	29,8	30,0	28,9	32,5	30,4			45 . 58 . 31,58	G.
	ζ Ursæ Min. R. M.	182 . 40	4 . 16,4	5,4	9,5	5,7	6,4	5,9	14,375	−1 . 29,09	182 . 42 . 38,56	G.
	ζ Ursæ Minoris	310 . 35	0 . 17,9	4,5	6,8	6,3	6,4	6,3			310 . 35 . 8,02	G.
	(*a*) Polaris R. M.	192 . 50	1 . 23,3	11,0	13,4	12,0	14,4	10,6	7,780 1 . 4 . 35	+ 48,44 − 0,70	192 . 52 . 1,69	G.
	Polaris	300 . 25	0 . 53,3	42,2	43,6	43,5	45,0	41,2	1 . 5 . 0	+ 0,88	300 . 25 . 45,58	G.
	(*b*) Polaris R. M.	192 . 50	1 . 24,8	13,1	15,8	13,4	15,5	12,0	7,747 1 . 9 . 45	+ 49,13 − 4,17	192 . 52 . 0,56	G.
	Polaris	300 . 25	0 . 48,7	38,8	38,0	38,3	38,9	36,7	1 . 10 . 30	+ 4,92	300 . 25 . 44,74	G.
May 2	η Bootis R. M.	123 . 35	3 . 35,9	27,0	25,0	26,6	27,1	25,0	7,942	+ 45,06	123 . 39 . 12,34	G.
	η Bootis	9 . 35	3 . 42,8	33,8	34,0	33,2	35,9	31,2			9 . 38 . 34,65	G.
	Arcturus R. M.	124 . 25	3 . 28,3	20,8	17,0	18,8	19,3	16,4	10,630	− 10,99	124 . 28 . 8,66	G.
	Arcturus	8 . 45	4 . 45,1	36,8	37,3	36,0	38,0	33,8			8 . 49 . 37,20	G.
May 3	(*c*) ⊙ N.L. M.	13 . 0	0 . 30,5	19,0	19,4	20,0	21,2	17,2	17,700	−2 . 38,34 + 0,26	12 . 57 . 43,09	G.
	⊙ S.L.	13 . 25	4 . 36,9	27,5	27,8	27,0	30,6	25,0		+ 0,60	13 . 29 . 29,12	G.
	γ Leonis R. M.	125 . 5	1 . 32,8	21,4	21,0	22,8	23,0	21,0	10,908	− 16,78	125 . 6 . 6,69	G.
	γ Leonis	8 . 10	1 . 46,0	35,5	36,0	37,2	37,4	34,5			8 . 11 . 37,55	G.
	ρ Leonis	18 . 40	2 . 47,0	37,0	37,8	36,5	38,8	35,6			18 . 42 . 38,42	G.
	(*d*) ☽ N.L.	17 . 30	4 . 59,2	50,7	50,8	49,4	50,4	46,6		+ 7,56	17 . 34 . 58,08	G.
	☽ N.L. M.	17 . 30	4 . 59,2	50,7	50,8	49,4	50,4	46,6	9,922	+ 3,63 + 3,78	17 . 34 . 57,93	G.
	☽ N.L. M.	17 . 30	4 . 59,2	50,7	50,8	49,4	50,4	46,6	9,770	+ 6,94	17 . 34 . 57,46	G.
	☽ N.L. M.	17 . 30	4 . 59,2	50,7	50,8	49,4	50,4	46,6	9,598	+ 10,60 − 3,78	17 . 34 . 57,34	G.
	☽ N.L. M.	17 . 30	4 . 59,2	50,7	50,8	49,4	50,4	46,6	9,400	+ 14,87 − 7,56	17 . 34 . 57,83	G.
	Jupiter N.L.	19 . 15	3 . 35,9	27,0	26,0	25,5	29,0	24,3			19 . 18 . 27,47	G.
	(*e*) α Ursæ Maj. R. M.	167 . 0	3 . 34,5	27,0	25,0	25,0	26,8	23,4	10,055	+ 1,00	167 . 3 . 27,48	G.
	α Ursæ Majoris	326 . 10	4 . 28,0	17,9	17,5	17,3	18,7	15,4			326 . 14 . 18,55	G.
	χ Leonis	20 . 35	3 . 25,2	17,3	15,5	15,7	16,8	13,0			20 . 38 . 16,80	G.
	σ Leonis	21 . 55	0 . 62,8	53,4	52,9	52,8	52,3	50,9			21 . 55 . 54,07	G.
	γ Cephei SP. R. M.	207 . 40	1 . 25,0	16,4	14,9	16,8	16,8	15,2	10,008	+ 1,98	207 . 41 . 19,31	G.
	γ Cephei SP.	285 . 35	1 . 36,0	27,5	23,3	27,1	22,5	26,0			285 . 36 . 26,87	G.
	(*f*) β Leonis R. M.	119 . 50	2 . 23,2	16,5	12,7	12,3	13,0	10,4	1,268	+3 . 4,24	119 . 55 . 18,62	G.
	β Leonis	13 . 20	2 . 36,4	27,0	26,1	26,2	28,8	24,8			13 . 22 . 27,87	G.
	γ Ursæ Maj. R. M.	159 . 0	2 . 19,2	11,0	11,1	11,8	10,8	7,5	11,223	− 23,36	159 . 1 . 48,24	G.
	γ Ursæ Majoris	334 . 15	0 . 67,8	56,2	57,2	58,0	58,0	55,8			334 . 15 . 58,70	G.
	Polaris SP. R. M.	195 . 55	3 . 23,0	13,2	12,8	12,8	13,0	10,7	9,217	+ 18,47	195 . 58 . 32,29	G.
	Polaris SP.	297 . 15	4 . 22,3	13,1	10,4	10,7	9,8	8,6			297 . 19 . 11,90	G.
	ι^1 Libræ	47 . 55	4 . 42,1	35,7	31,2	31,6	33,3	30,4			47 . 59 . 33,43	G.
	(*g*) Saturn N.L.	45 . 55	1 . 39,8	27,8	26,8	28,9	30,7	29,4			45 . 56 . 30,37	G.
	Venus N.L.	30 . 0	3 . 50,6	39,2	42,0	38,4	41,3	37,0			30 . 3 . 40,92	G.
	(*a*) Polaris R. M.	192 . 50	1 . 24,1	11,1	14,0	13,0	13,1	10,8	7,890	+ 46,15	192 . 52 . 0,33	G.
	Polaris	300 . 25	0 . 56,0	43,8	45,0	44,8	44,9	41,8			300 . 25 . 45,95	G.
May 4	(*h*) ⊙ S.L. M.	13 . 10	2 . 21,8	12,0	13,3	11,4	13,7	7,6	10,958	− 17,83	13 . 11 . 55,17	G.
	⊙ N.L.	12 . 40	0 . 22,0	11,4	13,3	13,0	13,8	9,3			12 . 40 . 13,77	G.

May 2, $1\frac{1}{2}^{h}$, Molyneux fast on Hardy 1^{m}. 17^{s},5.

(*a*) Unsteady.
(*b*) Cloudy. Mercury slightly waving.
(*c*) At the 4th and 5th wires. S.L. without dark glass. Corrections for change of N.P.D. +0″,22 and +0″,43.
(*d*) At the five wires.
(*e*) Star came too near the fixed wire to be seen clearly.
(*f*) Mercury disturbed by wind.
(*g*) Saturn's ring is in such a position as to make the observation of the apparent diameter of the ball doubtful.
(*h*) Cloudy.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
52,76	- 39 . 19 . 40,00	29,598	51,5	51,3	47,12				- 1 . 33 . 18,84	Polaris SP. R.
	- 39 . 19 . 40,98								- 1 . 33 . 19,82	Polaris SP.
52,39	32 . 10 . 45,68	29,610	50,5	49,7	36,33				69 . 58 . 30,29	Arcturus R.
	32 . 10 . 43,95								69 . 58 . 28,56	Arcturus.
	69 . 19 . 38,33	29,616	49,6	49,1	2 . 32,06	0,89	9,270	8,69	107 . 9 . 26,47	Saturn.
53,29	- 26 . 3 . 45,31				28,29				11 . 42 . 54,68	ζ Ursæ Min. R.
	- 26 . 3 . 45,23								11 . 42 . 54,76	ζ Ursæ Minoris.
53,63	- 36 . 13 . 8,44	29,750	58,6	59,0	41,69				1 . 33 . 18,15	Polaris R.
	- 36 . 13 . 7,67								1 . 33 . 18,92	Polaris.
52,65	- 36 . 13 . 7,31				41,69				1 . 33 . 19,28	Polaris R.
	- 36 . 13 . 8,51								1 . 33 . 18,08	Polaris.
53,49	32 . 59 . 40,91	29,646	54,0	54,6	37,16				70 . 47 . 26,25	η Bootis R.
	32 . 59 . 41,40								70 . 47 . 26,74	η Bootis.
52,93	32 . 10 . 44,59				36,02				69 . 58 . 28,89	Arcturus R.
	32 . 10 . 43,95								69 . 58 . 28,25	Arcturus.
	36 . 18 . 49,84	29,810	58,5	59,0	41,92	5,00		15 . 52,60	74 . 22 . 27,64	☉.
	36 . 50 . 35,87				42,74	5,07			74 . 22 . 29,22	☉
52,12	31 . 32 . 46,56	29,900	57,8	56,7	35,29				69 . 20 . 30,13	γ Leonis R.
	31 . 32 . 44,30								69 . 20 . 27,87	γ Leonis.
	42 . 3 . 45,17				51,84				79 . 51 . 45,29	ρ Leonis.
	40 . 56 . 4,83		56,8	55,0					78 . 23 . 31,99	☽.
	40 . 56 . 4,68								78 . 23 . 31,84	☽.
	40 . 56 . 4,21				50,00	35 . 16,28		14 . 45,16	78 . 23 . 31,37	☽.
	40 . 56 . 4,09								78 . 23 . 31,25	☽.
	40 . 56 . 4,58								78 . 23 . 31,74	☽.
	42 . 39 . 34,22				53,12	1,18	8,168	20,17	80 . 27 . 54,61	Jupiter.
53,02	- 10 . 24 . 34,23				10,60				27 . 22 . 23,45	α Ursæ Maj. R.
	- 10 . 24 . 34,70								27 . 22 . 22,98	α Ursæ Majoris.
	43 . 59 . 23,55				55,64				81 . 47 . 27,47	χ Leonis.
	45 . 17 . 0,82			54,0	58,32				83 . 5 . 7,42	σ Leonis.
53,09	- 51 . 2 . 26,06				1 . 11,37				- 13 . 16 . 29,15	γ Cephei SP. R.
	- 51 . 2 . 26,38								- 13 . 16 . 29,47	γ Cephei SP.
53,25	36 . 43 . 34,63				43,11				74 . 31 . 26,02	β Leonis R.
	36 . 43 . 34,62								74 . 31 . 26,01	β Leonis.
53,47	- 2 . 22 . 54,99				2,40				35 . 24 . 10,89	γ Ursæ Maj. R.
	- 2 . 22 . 54,55								35 . 24 . 11,33	γ Ursæ Majoris.
52,10	- 39 . 19 . 39,04	29,910	53,0	51,0	47,64				- 1 . 33 . 18,40	Polaris SP. R.
	- 39 . 19 . 41,35								- 1 . 33 . 20,71	Polaris SP.
	71 . 20 . 40,18		51,8	50,2	2 . 50,88				109 . 10 . 39,34	ι^1 Libræ.
	69 . 17 . 37,12	29,922	51,6	49,4	2 . 33,24	0,89	9,305	8,33	107 . 7 . 26,08	Saturn.
	53 . 24 . 47,67	29,952	55,0	56,6	1 . 17,47	11,14	8,824	13,94	91 . 13 . 16,22	Venus.
53,13	- 36 . 13 . 7,08		57,4	59,5	41,94				1 . 33 . 19,26	Polaris R.
	- 36 . 13 . 7,30								1 . 33 . 19,04	Polaris.
	36 . 33 . 1,92	29,944	60,4	62,2	42,21	5,03		15 . 52,30	74 . 4 . 55,08	☉.
	36 . 1 . 20,52				41,40	4,97			74 . 4 . 57,53	☉.

Coincidence of Micrometer Wire with fixed Wire = 10^{r},092, 10^{r},096, 10^{r},103, 10^{r},107, 10^{r},113 at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = - 4″,1.
Adopted Zenith Point = 336°. 38′. 53″,25.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
May 4	γ Leonis R. M.	125 . 5	1 . 23,3	12,2	13,0	11,8	13,6	11,0	10,398	− 6,15	125 . 6 . 7,82	G.
	γ Leonis	8 . 10	1 . 46,1	35,8	37,0	36,2	37,4	35,0			8 . 11 . 37,70	G.
	ρ Leonis	18 . 40	2 . 49,6	36,0	40,0	36,4	39,5	36,4			18 . 42 . 39,28	G.
	σ Leonis	21 . 55	0 . 64,2	52,3	53,4	52,8	52,8	51,3			21 . 55 . 54,35	G.
	(a) ☽ N.L.	23 . 10	2 . 43,8	30,7	32,5	31,0	32,0	31,4		+ 7,90	23 . 12 . 41,12	G.
	☽ N.L. M.	23 . 10	2 . 43,8	30,7	32,5	31,0	32,0	31,4	9,904	+ 4,00 + 3,95	23 . 12 . 41,17	G.
	☽ N.L. M.	23 . 10	2 . 43,8	30,7	32,5	31,0	32,0	31,4	9,739	+ 7,59	23 . 12 . 40,81	G.
	☽ N.L. M.	23 . 10	2 . 43,8	30,7	32,5	31,0	32,0	31,4	9,544	+ 11,74 − 3,95	23 . 12 . 41,01	G.
	☽ N.L. M.	23 . 10	2 . 43,8	30,7	32,5	31,0	32,0	31,4	9,355	+ 15,81 − 7,90	23 . 12 . 41,13	G.
	ν Virginis	21 . 20	4 . 53,4	41,1	42,0	40,4	42,3	39,0			21 . 24 . 42,38	G.
	(b) β Virginis	26 . 10	0 . 17,4	3,1	6,6	5,9	6,3	5,5		+ 0,03	26 . 10 . 7,46	G.
	η Ursæ Maj. R. M.	154 . 30	4 . 23,2	10,0	13,5	9,8	12,6	10,2	12,420	− 48,32	154 . 33 . 24,31	G.
	η Ursæ Majoris	338 . 40	4 . 33,0	20,0	24,0	21,5	20,5	20,7			338 . 44 . 22,68	G.
	η Bootis R. M.	123 . 35	3 . 23,8	12,2	13,4	10,8	12,3	10,0	7,165	+1 . 1,27	123 . 39 . 14,57	G.
	η Bootis	9 . 35	3 . 44,7	31,8	34,8	32,4	35,3	32,7			9 . 38 . 34,80	G.
	(c) α¹ Libræ R. M.	89 . 10	0 . 22,6	7,4	11,3	11,0	9,8	10,0	13,675	−1 . 14,71 + 0,16	89 . 8 . 57,43	G.
	α¹ Libræ	44 . 5	3 . 58,9	46,5	48,3	46,3	48,8	46,3		− 0,16	44 . 8 . 48,51	G.
	(c) α² Libræ R. M.	89 . 10	0 . 22,6	7,4	11,3	11,0	9,8	10,0	21,390	−3 . 55,60 + 0,16	89 . 6 . 16,54	G.
	α² Libræ M.	44 . 5	3 . 58,9	46,5	48,3	46,3	48,8	46,3	2,297	+2 . 42,99 − 0,16	44 . 11 . 31,50	G.
	β Ursæ Min. R. M.	179 . 10	4 . 23,2	10,8	13,8	10,8	11,2	9,0	9,284	+ 17,08	179 . 14 . 29,63	G.
	β Ursæ Minoris	314 . 0	3 . 28,0	15,2	16,5	15,0	13,8	14,4			314 . 3 . 16,70	G.
	Saturn S.L.	45 . 55	0 . 56,2	44,3	46,0	44,4	45,8	45,7			45 . 55 . 46,95	G.
	(d) Venus N.L.	29 . 45	3 . 21,8	10,8	13,0	11,0	11,2	8,8			29 . 48 . 12,32	G.
	Polaris	300 . 25	0 . 56,3	43,0	45,2	44,3	44,8	41,7			300 . 25 . 45,78	G.
May 5	⊙ N.L. M.	12 . 25	0 . 18,8	6,5	7,8	8,5	7,1	5,8	16,547	−2 . 14,46	12 . 22 . 54,61	G.
	(e) ⊙ S.L.	12 . 50	4 . 47,3	36,8	36,7	37,5	38,0	34,9		+ 0,59	12 . 54 . 38,56	G.
	Jupiter N.L.	19 . 15	3 . 52,0	40,5	40,3	39,8	39,6	39,2			19 . 18 . 41,45	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 46,0	34,9	35,0	34,3	34,0	32,5	10,459	− 7,51	167 . 3 . 28,16	G.
	α Ursæ Majoris	326 . 10	4 . 30,5	16,7	18,3	17,5	17,2	16,9			326 . 14 . 18,98	G.
	χ Leonis	20 . 35	3 . 27,4	16,1	15,2	16,3	14,2	14,0			20 . 38 . 16,80	G.
	σ Leonis	21 . 55	0 . 65,4	51,4	52,1	52,3	49,5	51,8			21 . 55 . 53,63	G.
	ν Virginis	21 . 20	4 . 53,4	41,0	41,8	40,7	39,0	39,0			21 . 24 . 41,90	G.
	β Virginis M	26 . 5	4 . 27,4	15,3	14,9	15,3	13,5	14,4	7,751	+ 48,97	26 . 10 . 5,24	G.
	(f) γ Ursæ Maj. R. M.	159 . 0	2 . 23,8	11,3	13,3	12,8	10,6	10,4	11,141	− 21,73	159 . 1 . 51,69	G.
	γ Ursæ Majoris	334 . 15	0 . 70,8	56,8	57,8	59,7	57,0	58,0			334 . 15 . 59,90	G.
	(g) ☽ N.L.	29 . 0	4 . 43,2	31,5	32,3	30,7	29,8	30,8		+ 8,08	29 . 4 . 40,56	G.
	☽ N.L. M.	29 . 0	4 . 43,2	31,5	32,3	30,7	29,8	30,8	9,918	+ 3,72 + 4,04	29 . 4 . 40,24	G.
	☽ N.L. M.	29 . 0	4 . 43,2	31,5	32,3	30,7	29,8	30,8	9,743	+ 7,43	29 . 4 . 39,91	G.
	☽ N.L. M.	29 . 0	4 . 43,2	31,5	32,3	30,7	29,8	30,8	9,560	+ 11,30 − 4,04	29 . 4 . 39,74	G.
	☽ N.L. M.	29 . 0	4 . 43,2	31,5	32,3	30,7	29,8	30,8	9,384	+ 15,08 − 8,08	29 . 4 . 39,48	G.
	γ Virginis	29 . 20	4 . 25,6	13,3	14,5	14,0	11,4	13,2			29 . 24 . 14,82	G.
May 6	Venus N.L.	29 . 15	1 . 12,8	0,3	4,2	3,5	0,4	0,0			29 . 16 . 3,40	G.
	Polaris R. M.	192 . 50	1 . 26,3	12,8	16,7	16,8	13,0	13,2	7,989	+ 44,00	192 . 52 . 0,30	G.
	Polaris	300 . 25	0 . 59,0	45,3	49,0	48,0	43,3	43,8			300 . 25 . 47,97	G.

Coincidences at the five wires and Runs taken May 8, 1ʰ. (Temp. 66°.)

(a) At the five wires. Cloudy, but very satisfactory.
(b) At the 5th wire.
(c) At the 1st and 5th wires. Mercury waving.
(d) Badly defined.
(e) At the 5th wire. Correction for change of N.P.D. = + 0″,42.
(f) Cloudy and faint. Not used in determining the Zenith Point.
(g) At the five wires. Very good.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N.P.D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
52,76	31 . 32 . 45,43	29,948	59,4	58,1	35,25				69 . 20 . 28,96	γ Leonis R.
	31 . 32 . 44,45								69 . 20 . 27,98	γ Leonis.
	42 . 3 . 46,03				51,78				79 . 51 . 46,09	ρ Leonis.
	45 . 17 . 1,10		57,0	55,3	58,26				83 . 5 . 7,64	σ Leonis.
	46 . 33 . 47,87		56,5	54,7					83 . 57 . 34,94	☽.
	46 . 33 . 47,92								83 . 57 . 34,99	☽.
	46 . 33 . 47,56				1 . 0,99	39 . 7,49		14 . 45,29	83 . 57 . 34,63	☽.
	46 . 33 . 47,76								83 . 57 . 34,83	☽.
	46 . 33 . 47,88								83 . 57 . 34,95	☽.
	44 . 45 . 49,13				57,29				82 . 33 . 54,70	ν Virginis.
	49 . 31 . 14,21				1 . 7,65				87 . 19 . 30,14	β Virginis.
53,50	2 . 5 . 28,94	29,972	52,6	51,7	2,13				39 . 52 . 39,35	η Ursæ Maj. R.
	2 . 5 . 29,43								39 . 52 . 39,84	η Ursæ Majoris.
54,68	32 . 59 . 38,68				37,79				70 . 47 . 24,75	η Bootis R.
	32 . 59 . 41,55								70 . 47 . 27,62	η Bootis.
52,97	67 . 29 . 55,82		52,3	50,4	2 . 19,97				105 . 19 . 24,07	α¹ Libræ R.
	67 . 29 . 55,26								105 . 19 . 23,51	α¹ Libræ.
54,02	67 . 32 . 36,71				2 . 20,27				105 . 22 . 5,26	α² Libræ R.
	67 . 32 . 38,25								105 . 22 . 6,80	α² Libræ.
53,17	− 22 . 35 . 36,38				24,29				15 . 11 . 7,61	β Ursæ Min. R.
	− 22 . 35 . 36,55								15 . 11 . 7,44	β Ursæ Minoris.
	69 . 16 . 53,70		51,5	49,7	2 . 33,31	0,89	10,910	8,42	107 . 6 . 25,98	Saturn.
	53 . 9 . 19,07	30,058	55,0	55,6	1 . 17,17	10,96	8,863	13,51	90 . 57 . 47,07	Venus.
	− 36 . 13 . 7,47	30,072	58,2	59,0	42,14				1 . 33 . 18,67	Polaris.
	35 . 44 . 1,36	30,116	61,5	62,0	41,21	4,93		15 . 52,10	73 . 47 . 38,02	☉.
	36 . 15 . 45,31				42,02	5,00			73 . 47 . 38,51	☉.
	42 . 39 . 48,20	30,148	51,3	49,6	54,15	1,17	8,234	19,45	80 . 28 . 8,91	Jupiter.
53,57	− 10 . 24 . 34,91				10,81				27 . 22 . 22,56	α Ursæ Maj. R.
	− 10 . 24 . 34,27								27 . 22 . 23,20	α Ursæ Majoris.
	43 . 59 . 23,55				56,72				81 . 47 . 28,55	χ Leonis.
	45 . 17 . 0,38				59,33				83 . 5 . 7,99	σ Leonis.
	44 . 45 . 48,65		50,0	47,9	58,47				82 . 33 . 55,40	ν Virginis.
	49 . 31 . 11,99				1 . 9,04				87 . 19 . 29,31	β Virginis.
55,80	− 2 . 22 . 58,44				2,46				35 . 24 . 7,38	γ Ursæ Maj. R.
	− 2 . 22 . 53,35								35 . 24 . 12,47	γ Ursæ Majoris.
	52 . 25 . 47,31								89 . 46 . 8,62	☽.
	52 . 25 . 46,99								89 . 46 . 8,30	☽.
	52 . 25 . 46,66				1 . 16,57	42 . 51,51		14 . 47,97	89 . 46 . 7,97	☽.
	52 . 25 . 46,49								89 . 46 . 7,80	☽.
	52 . 25 . 46,23								89 . 46 . 7,54	☽.
	52 . 45 . 21,57		48,9	47,5	1 . 17,54				90 . 33 . 47,39	γ Virginis.
	52 . 37 . 10,15	30,248	50,5	52,9	1 . 16,60	10,61	8,900	13,08	90 . 25 . 37,50	Venus.
54,13	− 36 . 13 . 7,05	30,260	55,0	56,4	42,63				1 . 33 . 18,60	Polaris R.
	− 36 . 13 . 5,28								1 . 33 . 20,37	Polaris.

Coincidence of Micrometer Wire with fixed Wire = 10ʳ,092, 10ʳ,096, 10ʳ,103, 10ʳ,107, 10ʳ,113 at the five wires.
From May 5 = 10ʳ,091, 10ʳ,096, 10ʳ,099, 10ʳ,102, 10ʳ,107.
One Micrometer Revolution = 20″,855.
Correction for Runs = −4″,1. From May 5 = −3″,7.
Adopted Zenith Point = 336°. 38′. 53″,25.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
May 7	⊙ N.L. M.	11 . 50	0 . 20,7	13,0	11,8	13,4	11,3	7,5	13,162	-1 . 3,87	11 . 49 . 9,05	G.
	⊙ S.L.	12 . 20	0 . 60,2	52,4	52,1	53,3	51,3	47,8			12 . 20 . 52,73	G.
	(*a*) Capella R. M.	150 . 15	1 . 25,3	13,0	15,0	15,5	14,4	12,4	11,368	- 26,47	150 . 15 . 49,30	G.
	Capella	343 . 0	1 . 66,0	54,5	58,0	56,3	58,5	52,0			343 . 1 . 57,32	G.
	α Hydræ R. M.	96 . 30	0 . 25,7	12,4	14,4	15,7	13,5	12,8	10,938	- 17,50	96 . 29 . 58,22	G.
	α Hydræ	36 . 45	2 . 56,8	46,8	45,0	47,2	46,5	44,3			36 . 47 . 47,42	G.
	Regulus R. M.	117 . 10	2 . 17,5	4,3	5,5	6,2	4,5	1,2	9,830	+ 5,62	117 . 12 . 11,89	G.
	Regulus	16 . 5	0 . 46,9	34,5	35,0	35,3	36,2	33,7			16 . 5 . 36,87	G.
	Jupiter N.L.	19 . 15	4 . 23,0	9,8	10,3	8,8	10,4	8,2			19 . 19 . 11,23	G.
	α Ursæ Majoris R. M.	167 . 0	3 . 54,8	42,5	43,8	41,8	44,4	40,4	10,888	- 16,45	167 . 3 . 27,70	G.
	α Ursæ Majoris	326 . 10	4 . 29,4	17,0	16,8	16,2	17,8	15,7			326 . 14 . 18,28	G.
	χ Leonis	20 . 35	3 . 27,8	15,4	14,1	14,7	15,5	14,0			20 . 38 . 16,52	G.
	σ Leonis	21 . 55	0 . 65,5	52,0	51,8	52,6	50,8	51,7			21 . 55 . 53,95	G.
	γ Virginis	29 . 20	4 . 25,5	12,1	13,5	12,2	12,0	12,6			29 . 24 . 14,12	G.
	Polaris SP. R. M.	195 . 55	4 . 26,0	13,5	14,3	12,2	12,8	10,8	12,070 0 . 56 . 55	- 41,11 + 0,88	195 . 58 . 34,17	G.
	Polaris SP.	297 . 15	4 . 26,3	13,4	12,8	13,5	9,7	11,8	0 . 57 . 20	- 0,71	297 . 19 . 13,36	G.
	θ Virginis	33 . 30	0 . 59,6	45,5	45,8	45,9	44,9	47,0			33 . 30 . 48,02	G.
	Spica R. M.	94 . 5	4 . 26,3	11,8	14,0	12,5	12,0	10,4	11,180	- 22,54	94 . 8 . 51,44	G.
	(*b*) Spica	39 . 5	3 . 65,0	52,5	52,0	51,4	50,5	51,5		- 0,11	39 . 8 . 53,22	G.
	(*c*) ☽ N.L.	40 . 45	3 . 25,8	13,1	13,3	13,7	11,2	12,2		+ 7,90	40 . 48 . 22,38	G.
	☽ N.L. M.	40 . 45	3 . 25,8	13,1	13,3	13,7	11,2	12,2	9,980	+ 2,43 + 3,95	40 . 48 . 20,86	G.
	☽ N.L. M.	40 . 45	3 . 25,8	13,1	13,3	13,7	11,2	12,2	9,771	+ 6,85	40 . 48 . 21,33	G.
	☽ N.L. M.	40 . 45	3 . 25,8	13,1	13,3	13,7	11,2	12,2	9,618	+ 10,08 - 3,95	40 . 48 . 20,61	G.
	☽ N.L. M.	40 . 45	3 . 25,8	13,1	13,3	13,7	11,2	12,2	9,378	+ 15,21 - 7,90	40 . 48 . 21,79	G.
	λ Virginis	41 . 25	2 . 24,7	11,2	11,7	11,3	8,5	10,4			41 . 27 . 12,70	G.
	Saturn N.L.	45 . 50	2 . 38,9	24,8	24,8	24,9	23,2	25,7			45 . 52 . 26,75	G.
	(*d*) Venus N.L.	28 . 55	4 . 35,0	27,5	25,7	26,1	24,2	22,3			28 . 59 . 26,25	G.
	(*a*) Polaris R. M.	192 . 50	1 . 20,8	7,0	11,0	11,2	6,5	7,6	7,831	+ 47,30	192 . 51 . 57,83	G.
	Polaris	300 . 25	0 . 59,3	45,8	47,3	47,8	44,1	43,0			300 . 25 . 47,78	G.
May 8	⊙ S.L. M.	12 . 5	0 . 20,8	10,2	11,2	11,8	11,0	7,2	12,324	- 46,40	12 . 4 . 25,60	G.
	⊙ N.L.	11 . 30	2 . 49,9	41,4	40,0	42,0	41,3	37,0			11 . 32 . 41,60	G.
	Procyon R. M.	110 . 5	1 . 20,6	5,4	7,1	8,2	5,8	4,4	12,982	-1 . 0,11	110 . 5 . 8,32	G.
	Procyon	23 . 10	2 . 47,9	37,2	35,4	37,1	36,8	35,2			23 . 12 . 37,95	G.
	Pollux R. M.	132 . 50	1 . 40,2	27,0	27,2	27,1	28,2	25,8	10,719	- 12,93	132 . 51 . 16,14	G.
	Pollux	0 . 25	1 . 39,0	26,4	27,3	28,0	28,8	25,2			0 . 26 . 28,93	G.
	Jupiter S.L.	19 . 20	0 . 22,4	19,2	11,0	11,8	10,8	9,7			19 . 20 . 14,12	G.
	γ Virginis	29 . 20	4 . 27,4	13,2	15,3	15,8	15,9	15,3			29 . 24 . 16,62	G.
	Polaris SP. R. M.	195 . 55	4 . 28,4	16,2	17,1	16,0	19,3	14,0	12,248 12 . 57 . 25	- 44,81 + 0,67	195 . 58 . 33,83	G.
	Polaris SP.	297 . 15	4 . 25,1	12,0	12,0	13,4	12,7	11,0	12 . 57 . 45	- 0,55	297 . 19 . 13,30	G.
	θ Virginis	33 . 30	0 . 59,3	45,7	45,9	47,8	46,0	47,3			33 . 30 . 48,57	G.
	Spica R. M.	94 . 5	4 . 33,0	19,0	21,3	20,4	20,8	18,1	11,608	- 31,47	94 . 8 . 50,08	G.
	Spica	39 . 5	3 . 67,0	54,9	55,7	54,5	56,0	53,2			39 . 8 . 56,38	G.
	λ Virginis	41 . 25	2 . 24,8	10,8	13,2	13,2	12,8	11,8			41 . 27 . 14,15	G.
	(*e*) ☽ S.L. M.	46 . 45	3 . 30,4	16,2	18,0	18,0	18,5	17,0	20,650	-3 . 40,19 + 7,38	46 . 44 . 46,47	G.
	☽ S.L. M.	46 . 45	3 . 30,4	16,2	18,0	18,0	18,5	17,0	20,530	-3 . 37,58 + 3,69	46 . 44 . 45,39	G.

May 7, 11ʰ and May 8, 21½ʰ, Molyneux fast on Hardy 1ᵐ. 20ˢ.

(*a*) Unsteady.
(*b*) At the 5th wire.
(*c*) At the five wires. Waving and badly defined.
(*d*) Dancing.
(*e*) At the five wires. Correction applied to S.L. for defect of illumination = + 0″,05.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer. Attach.	Thermometer. Free.	Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	35 . 10 . 15,80	30,272	60,6	62,2	40,56	4,86		15 . 51,70	73 . 13 . 51,48	☉.
	35 . 41 . 59,48				41,36	4,93			73 . 13 . 52,49	☉.
53,31	6 . 23 . 3,95	30,266	63,7	63,8	6,42				44 . 10 . 18,65	Capella R.
	6 . 23 . 4,07								44 . 10 . 18,77	Capella.
52,82	60 . 8 . 55,03	30,252	63,0	61,8	1 . 39,98				97 . 57 . 43,29	α Hydræ R.
	60 . 8 . 54,17								97 . 57 . 42,43	α Hydræ.
54,38	39 . 26 . 41,36	30,260	61,2	59,5	47,57				77 . 14 . 37,21	Regulus R.
	39 . 26 . 43,62								77 . 14 . 39,47	Regulus.
	42 . 40 . 17,98	30,266	58,6	56,7	53,60	1,16	8,260	19,18	80 . 28 . 37,88	Jupiter.
52,99	− 10 . 24 . 34,45				10,69				27 . 22 . 23,14	α Ursæ Maj. R.
	− 10 . 24 . 34,97								27 . 22 . 22,62	α Ursæ Majoris.
	43 . 59 . 23,27				56,12				81 . 47 . 27,67	χ Leonis.
	45 . 17 . 0,70	30,278	57,4	54,6	58,98				83 . 5 . 7,96	σ Leonis.
	52 . 45 . 20,87		52,7	49,0	1 . 17,62				90 . 33 . 46,77	γ Virginis.
53,77	− 39 . 19 . 40,92		51,8	48,4	48,47				−1 . 33 . 21,11	Polaris SP. R.
	− 39 . 19 . 39,89								−1 . 33 . 20,08	Polaris SP.
	56 . 51 . 54,77				1 . 30,45				94 . 40 . 33,50	θ Virginis.
52,33	62 . 30 . 1,81				1 . 53,25				100 . 19 . 3,34	Spica R.
	62 . 29 . 59,97								100 . 19 . 1,50	Spica.
	64 . 9 . 29,13								101 . 24 . 19,49	☽.
	64 . 9 . 27,61								101 . 24 . 17,97	☽.
	64 . 9 . 28,08				2 . 1,64	49 . 18,36		14 . 58,80	101 . 24 . 18,44	☽.
	64 . 9 . 27,36								101 . 24 . 17,72	☽.
	64 . 9 . 28,54								101 . 24 . 18,90	☽.
	64 . 48 . 19,45		50,0	46,0	2 . 5,80				102 . 37 . 33,53	λ Virginis.
	69 . 13 . 33,50		48,0	44,2	2 . 36,16	0,89	9,228	9,09	107 . 3 . 26,14	Saturn.
	52 . 20 . 33,00	30,264	54,6	57,2	1 . 15,21	10,44	8,872	13,39	90 . 8 . 59,44	Venus.
52,81	− 36 . 13 . 4,58	30,268	58,7	61,4	42,22				1 . 33 . 21,48	Polaris R.
	− 36 . 13 . 5,47								1 . 33 . 20,59	Polaris.
	35 . 25 . 32,35	30,274	63,6	65,4	40,69	4,89		15 . 51,50	72 . 57 . 24,93	☉.
	34 . 53 . 48,35				39,90	4,83			72 . 57 . 23,20	☉.
53,14	46 . 33 . 44,93	30,218	65,6	67,2	1 . 0,03				84 . 21 . 53,24	Procyon R.
	46 . 33 . 44,70								84 . 21 . 53,01	Procyon.
52,54	23 . 47 . 37,11				25,09				61 . 35 . 10,48	Pollux R.
	23 . 47 . 35,68								61 . 35 . 9,05	Pollux.
	42 . 41 . 20,87	30,208	60,5	59,7	53,22	1,16	11,967	19,48	80 . 29 . 1,73	Jupiter.
	52 . 45 . 23,37	30,186	56,8	53,6	1 . 16,67				90 . 33 . 48,32	γ Virginis.
53,57	− 39 . 19 . 40,58		55,8	53,1	47,87				− 1 . 33 . 20,17	Polaris SP. R.
	− 39 . 19 . 39,95								−1 . 33 . 19,54	Polaris SP.
	56 . 51 . 55,32				1 . 29,32				94 . 40 . 32,92	θ Virginis.
53,23	62 . 30 . 3,17				1 . 51,82				100 . 19 . 3,27	Spica R.
	62 . 30 . 3,13								100 . 19 . 3,23	Spica.
	64 . 48 . 20,90	30,180	53,4	49,6	2 . 4,47				102 . 37 . 33,65	λ Virginis.
	70 . 5 . 53,22				2 . 41,15	51 . 57,68		15 . 6,18	106 . 48 . 38,84	☽.
	70 . 5 . 52,14								106 . 48 . 37,76	☽.

Coincidence of Micrometer Wire with fixed Wire = 10^{r},091, 10^{r},096, 10^{r},099, 10^{r},102, 10^{r},107 at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = −3″,7.
Adopted Zenith Point = 336° . 38′ . 53″,25.
Assumed Co-latitude = 37° . 47′ . 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
May 8	☽ N.L.	46 . 10	4 . 31,8	18,0	19,4	19,4	19,8	19,2			46 . 14 . 20,73	G.
	☽ N.L. M.	46 . 10	4 . 31,8	18,0	19,4	19,4	19,8	19,2	9,942	+ 3,34 – 3,69	46 . 14 . 20,38	G.
	☽ N.L. M.	46 . 10	4 . 31,8	18,0	19,4	19,4	19,8	19,2	9,788	+ 6,66 – 7,38	46 . 14 . 20,01	G.
	β Ursæ Min. R.M.	179 . 10	4 . 28,9	16,4	19,8	16,0	19,8	14,5	9,504	+ 12,40	179 . 14 . 31,10	G.
	β Ursæ Minoris	314 . 0	3 . 27,8	13,9	16,0	15,8	14,8	13,5			314 . 3 . 16,57	G.
	(a) 20 Libræ	53 . 25	1 . 28,0	12,2	14,8	15,2	14,0	14,3			53 . 26 . 16,25	G.
	Saturn S.L.	45 . 50	1 . 55,0	41,2	42,4	42,8	41,8	42,8			45 . 51 . 44,15	G.
	Venus N.L.	28 . 40	2 . 35,4	25,2	25,5	25,2	24,8	21,2			28 . 42 . 25,92	G.
	Polaris R. M.	192 . 50	1 . 25,8	12,2	15,0	17,0	12,1	11,7	7,980	+ 44,19	192 . 51 . 59,66	G.
	Polaris	300 . 25	0 . 59,3	45,2	48,7	47,8	46,0	44,3			300 . 25 . 48,45	G.
May 9	⊙ N.L. M.	11 . 15	1 . 25,1	16,5	16,4	17,5	16,6	11,3	9,388	+ 14,83	11 . 16 . 31,90	G.
	⊙ S.L.	11 . 45	3 . 22,8	14,9	13,4	13,7	14,2	7,8			11 . 48 . 14,07	G.
	Procyon R. M.	110 . 5	1 . 22,5	9,0	8,0	12,8	7,4	6,7	13,090	–1 . 2,37	110 . 5 . 8,55	G.
	Procyon	23 . 10	2 . 47,3	38,4	36,2	37,0	38,3	34,0			23 . 12 . 38,20	G.
	Pollux R. M	132 . 50	1 . 17,2	4,8	4,8	6,0	3,2	2,2	9,656	+ 9,23	132 . 51 . 15,46	G.
	Pollux	0 . 25	1 . 40,4	29,0	30,0	30,4	32,8	25,4			0 . 26 . 31,15	G.
	(b) ☽ S.L.	51 . 30	1 . 48,7	33,3	35,0	36,0	35,8	35,1		– 3,20	51 . 31 . 33,92	G.
	☽ S.L. M	51 . 30	1 . 48,7	33,3	35,0	36,0	35,8	35,1	9,928	+ 3,74 – 6,40	51 . 31 . 34,46	G.
	Venus N.L.	28 . 25	0 . 17,5	4,8	7,7	7,1	3,5	2,2			28 . 25 . 7,12	G.
May 10	⊙ S.L. M.	11 . 30	2 . 21,3	7,1	11,8	10,3	8,4	5,5	9,661	+ 9,13	11 . 32 . 19,80	G.
	⊙ N.L.	11 . 0	0 . 49,0	34,9	38,3	37,6	37,0	34,6			11 . 0 . 38,55	G.
	Procyon R. M.	110 . 5	1 . 22,8	8,2	10,5	10,0	8,0	5,9	12,881	– 58,01	110 . 5 . 12,86	G.
	Procyon	23 . 10	2 . 47,0	35,7	36,4	35,8	35,8	33,5			23 . 12 . 37,30	G.
	Pollux R. M	132 . 50	1 . 19,0	5,0	8,1	6,8	5,0	3,2	9,587	+ 10,67	132 . 51 . 18,49	G.
	Pollux	0 . 25	1 . 39,8	28,4	30,4	29,4	29,7	25,8			0 . 26 . 30,55	G.
	Jupiter S.L.	19 . 20	1 . 15,3	4,2	6,5	4,3	3,2	1,0			19 . 21 . 5,72	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 51,2	40,7	42,8	38,8	38,8	36,9	10,638	– 11,24	167 . 3 . 30,19	G.
	α Ursæ Majoris	326 . 10	4 . 30,2	19,0	20,9	18,8	17,8	16,4			326 . 14 . 20,40	G.
	ν Virginis	21 . 20	4 . 52,8	41,3	43,0	39,4	40,2	36,9			21 . 24 . 42,13	G.
	β Virginis M	26 . 5	4 . 49,3	39,2	40,0	36,6	36,0	34,8	8,881	+ 25,41	26 . 10 . 4,61	G.
	γ Ursæ Maj. R. M.	159 . 0	2 . 23,0	11,4	14,2	12,2	10,6	8,8	11,190	– 22,75	159 . 1 . 50,55	G.
	γ Ursæ Majoris	334 . 15	0 . 70,0	57,4	59,5	58,8	57,8	55,7			334 . 15 . 59,83	G.
	18 Comæ Berenices.	3 . 50	0 . 71,2	57,8	62,4	59,8	58,2	56,3			3 . 51 . 0,92	G.
	γ Virginis	29 . 20	4 . 23,6	12,2	14,8	10,5	10,0	9,6			29 . 24 . 13,33	G.
	λ Virginis	41 . 25	2 . 22,4	8,3	12,3	9,5	6,4	6,8			41 . 27 . 10,88	G.
	(c) α¹ Libræ R. M.	89 . 5	3 . 31,4	16,8	21,0	15,8	16,8	14,9	7,838	+ 46,98 + 0,16	89 . 9 . 6,51	G.
	α¹ Libræ	44 . 5	3 . 55,2	42,3	44,2	41,0	39,5	40,8		– 0,16	44 . 8 . 43,57	G.
	(c) α² Libræ R. M.	89 . 5	3 . 31,4	16,8	21,0	15,8	16,8	14,9	15,652	–1 . 55,97 + 0,16	89 . 6 . 23,56	G.
	α² Libræ M.	44 . 5	3 . 55,2	42,3	44,2	41,0	39,5	40,8	2,370	+2 . 41,35 – 0,16	44 . 11 . 24,92	G.
	β Ursæ Min. R. M.	179 . 10	4 . 20,8	9,5	13,8	7,4	8,9	4,3	9,063	+ 21,60	179 . 14 . 32,27	G.
	β Ursæ Minoris	314 . 0	3 . 28,8	17,0	18,3	17,4	13,7	14,8			314 . 3 . 18,25	G.
	20 Libræ	53 . 25	1 . 22,4	8,9	11,8	9,0	7,4	7,5			53 . 26 . 11,13	G.
	χ Libræ	52 . 5	0 . 28,8	15,0	18,5	14,4	14,0	14,2			52 . 5 . 17,48	G.
	Saturn S.L.	45 . 45	4 . 49,8	39,2	40,2	35,4	36,3	36,0			45 . 49 . 39,37	G.
	δ Scorpii	50 . 55	2 . 51,8	39,4	41,3	37,8	37,5	36,7			50 . 57 . 40,68	G.

Runs taken May 14, 1h. (Temp. 50°,6.)
No assignable cause for change of Zenith Point.

(a) Flashing.
(b) At 4th and 5th wires. Uneven.

(c) At 1st and 5th wires. Blurs.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	69 . 35 . 27,48	30,180	53,4	49,6					106 . 48 . 31,59	☽.
	69 . 35 . 27,13				2 . 36,88	51 . 47,23		15 . 6,18	106 . 48 . 31,24	☽.
	69 . 35 . 26,76								106 . 48 . 30,87	☽.
53,84	– 22 . 35 . 37,85	30,170	52,0	47,5	24,59				15 . 11 . 5,84	β Ursæ Min. R.
	– 22 . 35 . 36,68								15 . 11 . 7,01	β Ursæ Minoris.
	76 . 47 . 23,00				4 . 6,63				114 . 38 . 37,91	20 Libræ.
	69 . 12 . 50,90	30,150	50,3	46,5	2 . 34,67	0,89	10,980	9,19	107 . 2 . 23,77	Saturn.
	52 . 3 . 32,67	30,106	55,0	56,6	1 . 14,15	10,27	8,878	13,33	89 . 51 . 58,16	Venus.
54,06	– 36 . 13 . 6,41		56,7	59,2	42,18				1 . 33 . 19,69	Polaris R.
	– 36 . 13 . 4,80								1 . 33 . 21,30	Polaris.
	34 . 37 . 38,65	30,100	61,6	63,7	39,41	4,79		15 . 51,20	72 . 41 . 12,75	⊙.
	35 . 9 . 20,82				40,19	4,86			72 . 41 . 13,23	⊙.
53,38	46 . 33 . 44,70	30,080	65,8	66,0	59,89				84 . 21 . 52,87	Procyon R.
	46 . 33 . 44,95								84 . 21 . 53,12	Procyon.
53,30	23 . 47 . 37,79				25,04				61 . 35 . 11,11	Pollux R.
	23 . 47 . 37,90								61 . 35 . 11,22	Pollux.
	74 . 52 . 40,67	30,154	48,5	45,3	3 . 36,18	53 . 50,97		15 . 14,44	111 . 34 . 19,72	☽.
	74 . 52 . 41,21								111 . 34 . 20,26	☽.
	51 . 46 . 13,87	30,274	51,5	51,5	1 . 14,55	10,11	8,922	12,85	89 . 34 . 39,44	Venus.
	34 . 53 . 25,00	30,312	54,8	54,9	40,78	4,83		15 . 51,00	72 . 25 . 18,23	⊙.
	34 . 21 . 43,75				39,99	4,76			72 . 25 . 18,26	⊙.
55,08	46 . 33 . 41,94	30,336	53,5	52,9	1 . 2,00				84 . 21 . 52,22	Procyon R.
	46 . 33 . 42,50								84 . 21 . 52,78	Procyon.
54,52	23 . 47 . 36,31				25,92				61 . 35 . 10,51	Pollux R.
	23 . 47 . 35,75								61 . 35 . 9,95	Pollux.
	42 . 42 . 10,92	30,350	50,2	47,5	54,82	1,15	11,974	19,55	80 . 29 . 53,32	Jupiter.
55,30	– 10 . 24 . 35,39				10,92				27 . 22 . 21,97	α Ursæ Maj. R.
	– 10 . 24 . 34,40								27 . 22 . 22,96	α Ursæ Majoris.
	44 . 45 . 47,33		48,0	44,5	59,26				82 . 33 . 54,87	ν Virginis.
	49 . 31 . 9,81				1 . 9,98				87 . 19 . 28,07	β Virginis
55,19	– 2 . 22 . 55,75				2,49				35 . 24 . 10,04	γ Ursæ Maj. R.
	– 2 . 22 . 54,97								35 . 24 . 10,82	γ Ursæ Majoris.
	27 . 12 . 6,12	30,356	46,7	43,2	30,83				64 . 59 . 45,23	18 Comæ Beren.
	52 . 45 . 18,53				1 . 18,76				90 . 33 . 45,57	γ Virginis.
	64 . 48 . 16,08	30,348	43,6	39,6	2 . 7,77				102 . 37 . 32,13	λ Virginis.
55,04	67 . 29 . 48,29		42,0	37,7	2 . 25,47				105 . 19 . 22,04	α^1 Libræ R.
	67 . 29 . 48,77								105 . 19 . 22,52	α^1 Libræ.
54,24	67 . 32 . 31,24				2 . 25,79				105 . 22 . 5,31	α^2 Libræ R.
	67 . 32 . 30,12								105 . 22 . 4,19	α^2 Libræ.
55,26	– 22 . 35 . 37,47				25,24				15 . 11 . 5,57	β Ursæ Min. R.
	– 22 . 35 . 36,55								15 . 11 . 6,49	β Ursæ Minoris.
	76 . 47 . 16,33				4 . 13,27				114 . 38 . 37,88	20 Libræ.
	75 . 26 . 22,68	30,342	41,4	38,4	3 . 49,37				113 . 17 . 20,33	χ Libræ.
	69 . 10 . 44,57				2 . 38,04	0,89	10,968	9,07	107 . 0 . 20,93	Saturn.
	74 . 18 . 45,88				3 . 32,62				112 . 9 . 26,78	δ Scorpii.

Coincidence of Micrometer Wire with fixed Wire = $10^{r},091$, $10^{r},096$, $10^{r},099$, $10^{r},102$, $10^{r},107$ at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = – 3″,7. From May 10 = – 0″,8.
Adopted Zenith Point = 336° . 38′ . 53″,25. From May 10 = 336° . 38′ . 54″,80.
Assumed Co-latitude = 37° . 47′ . 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
May 10	(*a*) ☽ S.L.	55 . 15	3 . 20,0	8,7	11,0	7,0	7,2	5,4		+ 4,80	55 . 18 . 14,60	G.
	☽ S.L. M.	55 . 15	3 . 20,0	8,7	11,0	7,0	7,2	5,4	9,952	+ 3,00 + 2,40	55 . 18 . 15,20	G.
	☽ S.L. M.	55 . 15	3 . 20,0	8,7	11,0	7,0	7,2	5,4	9,895	+ 4,25	55 . 18 . 14,05	G.
	☽ S.L. M.	55 . 15	3 . 20,0	8,7	11,0	7,0	7,2	5,4	9,789	+ 6,53 − 2,40	55 . 18 . 13,93	G.
	☽ S.L. M.	55 . 15	3 . 20,0	8,7	11,0	7,0	7,2	5,4	9,673	+ 9,04 − 4,80	55 . 18 . 14,04	G.
	(*b*) τ Scorpii	56 . 35	3 . 55,0	42,5	46,1	41,8	42,1	40,7			56 . 38 . 44,60	G.
	(*b*) 25 Scorpii	54 . 0	1 . 17,7	5,0	7,0	3,7	3,3	2,4			54 . 1 . 6,48	G.
	Venus N.L.	28 . 5	2 . 39,1	27,3	30,0	27,5	26,8	25,2			28 . 7 . 29,25	G.
	Polaris R. M.	192 . 50	1 . 24,0	10,3	15,9	13,3	11,0	7,8	7,990	+ 43,98	192 . 51 . 57,66	G.
	Polaris	300 . 25	0 . 62,8	48,2	53,0	50,8	48,0	46,3			300 . 25 . 51,48	G.
May 11	(*c*) ⊙ N.L. M.	10 . 45	0 . 26,8	14,2	18,8	16,8	16,0	12,0	10,839	− 15,43	10 . 45 . 2,00	G.
	⊙ S.L.	11 . 15	1 . 53,1	41,9	46,1	43,0	42,4	38,1			11 . 16 . 44,05	G.
	Jupiter N.L.	19 . 20	0 . 70,0	58,0	62,5	60,0	60,5	55,9			19 . 21 . 1,12	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 53,8	42,2	46,0	43,3	43,3	40,0	10,820	− 15,04	167 . 3 . 29,63	G.
	α Ursæ Majoris	326 . 10	4 . 29,0	16,0	19,8	17,6	18,2	14,0			326 . 14 . 18,98	G.
	β Leonis R. M.	119 . 55	1 . 24,5	13,8	14,2	13,8	11,8	9,1	12,724	− 54,74	119 . 55 . 19,76	G.
	β Leonis	13 . 20	2 . 38,1	27,4	28,9	27,8	29,0	24,7			13 . 22 . 29,25	G.
	γ Ursæ Maj. R. M.	159 . 0	2 . 28,7	15,0	19,4	18,0	18,3	13,8	11,430	− 27,76	159 . 1 . 51,04	G.
	γ Ursæ Majoris	334 . 15	0 . 69,0	56,0	59,5	59,8	59,2	55,2			334 . 15 . 59,75	G.
	18 Comæ Berenices.	3 . 50	0 . 69,4	57,0	61,5	59,0	60,5	55,3			3 . 51 . 0,42	G.
	α Cassiop. SP. R. M.	228 . 45	1 . 29,8	17,5	19,2	18,5	19,8	16,0	15,964	−2 . 2,31	228 . 44 . 17,79	G.
	α Cassiopeiæ SP.	264 . 30	3 . 41,2	28,1	28,3	29,8	27,3	27,0			264 . 33 . 30,18	G.
	Polaris SP. R. M.	195 . 55	4 . 19,0	6,5	9,0	6,8	7,5	2,7	11,640	− 32,13	195 . 58 . 36,34	G.
	Polaris SP.	297 . 15	4 . 23,0	11,0	12,2	11,0	8,8	7,1			297 . 19 . 12,07	G.
	ε Cassiop. SP. R. M.	221 . 30	4 . 19,1	8,0	8,8	8,0	9,4	4,1	16,661	−2 . 16,84	221 . 31 . 52,61	G.
	ε Cassiopeiæ SP	271 . 45	0 . 65,0	53,2	55,8	56,8	52,6	52,9			271 . 45 . 56,03	G.
	(*d*) 20 Libræ	53 . 25	1 . 26,9	15,0	16,5	15,8	15,9	14,0		− 0,27	53 . 26 . 17,05	G.
	α Coron. Bor. R. M.	131 . 40	2 . 22,9	10,0	13,3	10,0	9,8	8,0	10,328	− 4,79	131 . 42 . 7,49	G.
	α Coronæ Borealis.	1 . 35	0 . 50,8	37,8	43,0	40,3	39,0	37,2			1 . 35 . 41,33	G.
	χ Libræ	52 . 5	0 . 33,8	20,0	22,9	21,0	22,8	20,0			52 . 5 . 23,40	G.
	(*e*) Saturn N.L.	45 . 45	3 . 36,6	23,2	24,4	22,7	24,5	23,0			45 . 48 . 25,63	G.
	δ Scorpii	50 . 55	2 . 55,8	43,0	45,5	43,4	43,8	41,8			50 . 57 . 45,48	G.
	τ Scorpii	56 . 35	3 . 63,0	50,1	53,5	49,8	50,6	48,7			56 . 38 . 52,52	G.
	25 Scorpii	54 . 0	1 . 18,9	5,5	7,5	6,0	3,9	3,9			54 . 1 . 7,58	G.
	(*f*) ☽ S.L	57 . 40	3 . 38,9	24,0	29,2	24,4	25,9	23,8		+ 2,50	57 . 43 . 30,12	G.
	☽ S.L. M	57 . 40	3 . 38,9	24,0	29,2	24,4	25,9	23,8	9,984	+ 2,34 + 1,25	57 . 43 . 31,21	G.
	☽ S.L. M.	57 . 40	3 . 38,9	24,0	29,2	24,4	25,9	23,8	9,959	+ 2,92	57 . 43 . 30,54	G.
	☽ S.L. M.	57 . 40	3 . 38,9	24,0	29,2	24,4	25,9	23,8	9,940	+ 3,38 − 1,25	57 . 43 . 29,75	G.
	☽ S.L. M.	57 . 40	3 . 38,9	24,0	29,2	24,4	25,9	23,8	9,936	+ 3,57 − 2,50	57 . 43 . 28,69	G.
	Venus N.L.	27 . 45	4 . 42,6	31,9	33,3	31,5	31,9	28,3			27 . 49 . 33,13	G.
May 12	⊙ S.L. M.	11 . 0	1 . 20,0	11,0	12,0	12,0	11,5	5,8	9,408	+ 14,41	11 . 1 . 26,43	G.
	⊙ N.L.	10 . 25	4 . 52,5	45,3	45,0	43,6	44,4	38,0			10 . 29 . 44,67	G.
	(*g*) Capella R. M.	150 . 15	1 . 23,1	10,0	14,8	11,8	12,4	7,6	11,291	− 24,86	150 . 15 . 48,39	G.
	Capella	343 . 0	1 . 68,8	56,8	60,6	58,8	59,2	54,7			343 . 1 . 59,77	G.

(*a*) At the five wires. Badly defined and unsteady.

(*b*) It is very difficult to bisect these low stars satisfactorily.

(*c*) Limbs rather indistinct.

(*d*) At the 5th wire.

(*e*) The micrometer for the opposite limb was not read. The adopted semidiameter is the mean of those obtained May 8, 10, 12 and 14.

(*f*) At the five wires. Uneven limb.

(*g*) Great unsteadiness.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	78 . 39 . 19,80	30,338	40,8	37,2					115 . 20 . 46,38	☽.
	78 . 39 . 20,40								115 . 20 . 46,98	☽.
	78 . 39 . 19,25				4 . 54,50	55 . 13,16		15 . 23,04	115 . 20 . 45,83	☽.
	78 . 39 . 19,13								115 . 20 . 45,71	☽.
	78 . 39 . 19,24								115 . 20 . 45,82	☽.
	79 . 59 . 49,80				5 . 32,53				117 . 52 . 30,61	τ Scorpii.
	77 . 22 . 11,68				4 . 25,02				115 . 13 . 44,98	25 Scorpii.
	51 . 28 . 34,45	30,310	46,8	46,5	1 . 14,62	9,95	8,914	12,94	89 . 17 . 0,34	Venus.
54,57	– 36 . 13 . 2,86	30,300	48,0	47,9	43,42				1 . 33 . 22,00	Polaris R.
	– 36 . 13 . 3,32								1 . 33 . 21,54	Polaris.
	34 . 6 . 7,20	30,278	52,8	52,1	39,78	4,73		15 . 50,80	72 . 9 . 41,33	⊙.
	34 . 37 . 49,25				40,57	4,79			72 . 9 . 42,51	⊙.
	42 . 42 . 6,32	30,188	53,8	53,1	53,92	1,15	8,250	19,28	80 . 30 . 26,65	Jupiter.
54,31	– 10 . 24 . 34,83				10,74				27 . 22 . 22,71	α Ursæ Maj. R.
	– 10 . 24 . 35,82								27 . 22 . 21,72	α Ursæ Majoris.
54,51	36 . 43 . 35,04	30,180	52,5	52,5	43,65				74 . 31 . 26,97	β Leonis R.
	36 . 43 . 34,45								74 . 31 . 26,38	β Leonis.
55,39	– 2 . 22 . 56,24				2,44				35 . 24 . 9,60	γ Ursæ Maj. R.
	– 2 . 22 . 55,05								35 . 24 . 10,79	γ Ursæ Majoris.
	27 . 12 . 5,62	30,172	52,4	52,1	30,10				64 . 59 . 44,00	18 Comæ Beren.
53,98	– 72 . 5 . 22,99				2 . 59,21				– 34 . 21 . 13,92	α Cassiop. SP. R.
	– 72 . 5 . 24,62								– 34 . 21 . 15,55	α Cassiop. SP.
54,20	– 39 . 19 . 41,54				47,95				– 1 . 33 . 21,21	Polaris SP. R.
	– 39 . 19 . 42,73								– 1 . 33 . 22,40	Polaris SP.
54,32	– 64 . 52 . 57,81	30,168	51,3	50,1	2 . 4,76				– 27 . 7 . 54,29	ε Cassiop. SP. R.
	– 64 . 52 . 58,77								– 27 . 7 . 55,25	ε Cassiop. SP.
	76 . 47 . 22,25	30,142	48,2	45,5	4 . 7,48				114 . 38 . 38,01	20 Libræ.
54,41	24 . 56 . 47,31	30,136	47,6	45,0	27,60				62 . 44 . 23,19	α Coron. Bor. R.
	24 . 56 . 46,53								62 . 44 . 22,41	α Coronæ Bor.
	75 . 26 . 28,60				3 . 44,69				113 . 17 . 21,57	χ Libræ.
	69 . 9 . 30,83				2 . 34,65	0,89		8,74	106 . 59 . 21,61	Saturn.
	74 . 18 . 50,68				3 . 28,28				112 . 9 . 27,24	δ Scorpii.
	79 . 59 . 57,72	30,122	46,4	43,0	5 . 26,11				117 . 52 . 32,11	τ Scorpii.
	77 . 22 . 12,78				4 . 19,91				115 . 13 . 40,97	25 Scorpii.
	81 . 4 . 35,32	30,110	44,6	39,7					117 . 46 . 7,52	☽.
	81 . 4 . 36,41								117 . 46 . 8,61	☽.
	81 . 4 . 35,74				6 . 5,60	56 . 10,02		15 . 31,66	117 . 46 . 7,94	☽.
	81 . 4 . 34,95								117 . 46 . 7,15	☽.
	81 . 4 . 33,89								117 . 46 . 6,09	☽.
	51 . 10 . 38,33	30,060	48,8	49,6	1 . 12,76	9,79	8,898	13,12	88 . 59 . 2,70	Venus.
	34 . 22 . 31,63	30,010	55,0	57,0	39,45	4,76		15 . 50,60	71 . 54 . 24,00	⊙.
	33 . 50 . 49,87				38,67	4,70			71 . 54 . 22,72	⊙.
54,08	6 . 23 . 6,41	29,954	54,9	59,5	6,41				44 . 10 . 21,10	Capella R.
	6 . 23 . 4,97								44 . 10 . 19,66	Capella.

Coincidence of Micrometer Wire with fixed Wire = 10^{r},091, 10^{r},096, 10^{r},099, 10^{r},102, 10^{r},107 at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = – 0″,8.
Adopted Zenith point = 336°. 38′. 54″,80.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ′ ″	° ′ ″	
May 12	Procyon R. M.	110 . 5	1 . 26,8	11,9	14,4	14,8	12,8	10,9	13,284	-1 . 6,41	110 . 5 . 8,82	G.
	Procyon	23 . 10	2 . 46,0	34,9	35,1	35,3	35,8	33,1			23 . 12 . 36,63	G.
	Pollux R. M.	132 . 50	1 . 20,8	7,6	10,8	8,8	8,3	5,1	9,791	+ 6,43	132 . 51 . 16,63	G.
	Pollux	0 . 25	1 . 40,2	28,8	29,8	30,3	30,4	26,2			0 . 26 . 30,92	G.
	Jupiter S.L.	19 . 20	2 . 27,8	18,0	17,4	17,0	19,2	13,0			19 . 22 . 18,67	G.
	(a) η Ursæ Maj. R. M.	154 . 30	4 . 17,9	7,8	8,8	6,8	9,4	4,9	12,063	- 40,90 - 0,18	154 . 33 . 28,07	G.
	η Ursæ Majoris	338 . 40	4 . 29,8	18,8	23,0	21,3	20,4	16,9		+ 0,72	338 . 44 . 22,30	G.
	(b) Saturn S.L.	45 . 45	2 . 53,1	43,0	42,8	42,0	44,2	41,2			45 . 47 . 44,32	G.
May 14	(c) β Ursæ Min. R. M.	179 . 10	4 . 32,0	18,9	22,8	19,1	18,0	15,6	9,424	+ 14,08	179 . 14 . 35,03	G.
	β Ursæ Minoris	314 . 0	3 . 28,3	14,6	17,3	15,3	13,8	12,6			314 . 3 . 16,90	G.
	β Libræ R. M.	95 . 35	3 . 47,8	34,2	36,8	34,5	34,2	33,0	3,885	+2 . 9,58	95 . 40 . 46,23	G.
	β Libræ	37 . 35	1 . 73,2	59,0	62,0	60,7	60,4	57,8			37 . 37 . 2,13	G.
	(d) α Coronæ Borealis R. M.	131 . 40	2 . 24,4	11,0	15,0	11,6	9,8	8,9	10,392	- 6,11	131 . 42 . 7,27	G.
	α Coronæ Borealis.	1 . 35	0 . 51,0	36,0	42,6	39,8	38,9	36,8			1 . 35 . 40,83	G.
	Saturn S.L.	45 . 45	0 . 53,4	39,0	42,1	39,8	39,0	39,0			45 . 45 . 42,03	G.
	Venus N.L.	26 . 50	3 . 69,8	57,8	60,8	57,0	56,8	54,0			26 . 53 . 59,27	G.
	(e) Polaris R. M.	192 . 50	1 . 23,2	10,0	15,1	12,8	10,8	8,1	7,908	+ 45,69	192 . 51 . 58,99	G.
	Polaris	300 . 25	0 . 63,6	49,9	53,7	51,6	49,3	47,3			300 . 25 . 52,55	G.
May 15	⊙ N.L. M.	9 . 45	0 . 23,8	12,0	16,6	14,0	12,2	9,1	8,850	+ 26,05	9 . 45 . 40,67	G.
	⊙ S.L.	10 . 15	2 . 30,8	19,8	21,8	20,7	19,7	16,0			10 . 17 . 21,40	G.
	(f) Jupiter N.L.	19 . 20	3 . 66,8	55,9	58,9	54,9	56,5	51,4			19 . 23 . 57,30	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 53,9	43,8	47,1	43,4	44,0	39,6	10,788	- 14,37	167 . 3 . 30,83	G.
	α Ursæ Majoris	326 . 10	4 . 31,0	18,1	21,2	18,9	19,7	15,0			326 . 14 . 20,53	G.
	β Leonis R. M.	119 . 55	1 . 24,2	13,9	14,5	13,0	12,2	9,1	12,687	- 53,96	119 . 55 . 20,49	G.
	β Leonis	13 . 20	2 . 37,4	25,2	28,5	25,5	28,3	22,9			13 . 22 . 27,90	G.
	γ Ursæ Maj. R. M.	159 . 0	2 . 22,7	12,3	15,8	13,4	12,4	8,8	11,181	- 22,56	159 . 1 . 51,61	G.
	γ Ursæ Majoris	334 . 15	0 . 69,0	56,1	60,5	59,8	58,8	55,3			334 . 15 . 59,88	G.
	η Ursæ Maj. R. M.	154 . 30	4 . 22,0	12,2	15,0	10,6	12,0	8,7	12,223	- 44,29	154 . 33 . 29,01	G.
	η Ursæ Majoris	338 . 40	4 . 31,1	20,0	24,4	21,3	19,4	17,4			338 . 44 . 22,15	G.
	η Bootis R. M.	123 . 35	3 . 21,1	10,9	12,8	9,9	9,8	6,4	6,924	+1 . 6,21	123 . 39 . 17,94	G.
	η Bootis	9 . 35	3 . 42,5	31,5	34,7	31,0	32,9	28,9			9 . 38 . 33,48	G.
	Saturn N.L.	45 . 40	4 . 32,8	23,3	24,8	20,8	22,3	19,7			45 . 44 . 23,83	G.
	(g) Venus N.L.	26 . 30	4 . 64,0	54,2	56,2	52,8	54,4	48,9			26 . 34 . 54,95	G.
May 16	(h) ⊙ S.L.	10 . 0	3 . 23,5	23,4	26,5	26,4	25,3	23,6			10 . 3 . 24,70	G.
	⊙ N.L.	9 . 30	1 . 44,2	43,8	46,3	45,9	45,0	43,7			9 . 31 . 44,77	G.
	Jupiter S.L.	19 . 25	0 . 36,4	32,9	36,9	36,3	37,1	36,3			19 . 25 . 35,97	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 33,1	30,6	34,5	33,4	33,8	33,2	9,812	+ 6,20	167 . 3 . 39,20	G.
	α Ursæ Majoris	326 . 10	4 . 30,0	26,0	30,3	29,5	29,2	28,1			326 . 14 . 28,73	G.
	(i) γ Cephei SP. R. M.	207 . 40	1 . 36,7	35,0	35,3	38,2	38,2	37,4	10,438	- 6,87	207 . 41 . 29,88	G.
	γ Cephei SP	285 . 35	1 . 36,0	34,0	34,5	38,2	32,3	36,9			285 . 36 . 35,27	G.
	β Leonis R. M.	119 . 55	1 . 25,1	24,2	24,8	25,8	23,2	24,7	12,744	- 54,94	119 . 55 . 29,66	G.
	β Leonis	13 . 20	2 . 37,2	34,3	37,3	37,5	37,3	37,0			13 . 22 . 36,70	G.
	γ Ursæ Maj. R. M.	159 . 0	2 . 24,8	22,2	25,0	27,5	24,9	25,9	11,248	- 23,76	159 . 2 . 1,22	G.
	γ Ursæ Majoris	334 . 15	1 . 8,0	3,3	8,0	10,2	6,8	8,2			334 . 16 . 7,38	G.
	ε Cassiopeiæ SP. R. M.	221 . 30	1 . 25,0	22,4	23,0	25,9	24,2	26,0	8,213	+ 39,54	221 . 32 . 3,92	G.
	ε Cassiopeiæ SP	271 . 45	1 . 6,1	3,0	5,5	8,6	1,8	7,0			271 . 46 . 5,30	G.
	Saturn S.L.	45 . 40	3 . 48,6	47,4	49,4	48,0	47,4	48,9			45 . 43 . 48,18	G.

After the observation of Venus May 15 the microscopes were adjusted.
Coincidences at the five wires taken May 28, 23h.

(a) At 4th and 5th wires.
(b) Cloudy.
(c) Very unsatisfactory: the shutters were just opened, and the wind disturbed the mercury.
(d) The stars this night were very unsteady, and badly defined.
(e) Unfavorable circumstances: clouds and wind.
(f) Worth little, so cloudy.
(g) Very cloudy.
(h) S.L. came accidentally on the fixed wire.
(i) Very good.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
52,73	46 . 33 . 45,98	29,898	58,4	62,2	1 . 0,01				84 . 21 . 54,27	Procyon R.
	46 . 33 . 41,83								84 . 21 . 50,12	Procyon.
53,78	23 . 47 . 38,17				25,08				61 . 35 . 11,53	Pollux R.
	23 . 47 . 36,12								61 . 35 . 9,48	Pollux.
	42 . 43 . 23,87	29,826	56,8	57,5	52,85	1,15	11,927	19,07	80 . 31 . 4,78	Jupiter.
55,19	2 . 5 . 26,73	29,778	52,9	52,5	2,11				39 . 52 . 37,12	η Ursæ Maj. R.
	2 . 5 . 27,50								39 . 52 . 37,89	η Ursæ Majoris.
	69 . 8 . 49,52	29,720	50,9	48,7	2 . 31,28	0,89	10,890	8,25	106 . 58 . 19,94	Saturn.
55,97	− 22 . 35 . 40,23	29,644	46,0	41,2	24,48				15 . 11 . 3,57	β Ursæ Min. R.
	− 22 . 35 . 37,90								15 . 11 . 5,90	β Ursæ Minoris.
54,18	60 . 58 . 8,57		44,8	39,6	1 . 45,89				98 . 47 . 2,74	β Libræ R.
	60 . 58 . 7,33								98 . 47 . 1,50	β Libræ.
54,05	24 . 56 . 47,53				27,45				62 . 44 . 23,26	α Coron. Bor. R.
	24 . 56 . 46,03								62 . 44 . 21,76	α Coronæ Bor.
	69 . 6 . 47,23				2 . 33,47	0,89	10,909	8,45	106 . 56 . 19,64	Saturn.
	50 . 15 . 4,47	29,668	44,5	44,2	1 . 10,27	9,32	8,994	12,07	88 . 3 . 25,77	Venus.
55,77	− 36 . 13 . 4,19		45,4	45,8	42,71				1 . 33 . 21,38	Polaris R.
	− 36 . 13 . 2,25								1 . 33 . 23,32	Polaris.
	33 . 6 . 45,87	29,676	48,8	48,9	37,80	4,60		15 . 50,00	71 . 10 . 17,35	⊙.
	33 . 38 . 26,60				38,57	4,67			71 . 10 . 18,78	⊙.
	42 . 45 . 2,50	29,696	46,6	45,5	53,96	1,14	8,326	18,49	80 . 33 . 22,09	Jupiter.
55,68	− 10 . 24 . 36,03				10,74				27 . 22 . 21,51	α Ursæ Maj. R.
	− 10 . 24 . 34,27								27 . 22 . 23,27	α Ursæ Majoris.
54,20	36 . 43 . 34,31		45,6	43,7	43,73				74 . 31 . 26,32	β Leonis R.
	36 . 43 . 33,10								74 . 31 . 25,11	β Leonis.
55,75	− 2 . 22 . 56,81				2,44				35 . 24 . 9,03	γ Ursæ Maj. R.
	− 2 . 22 . 54,92								35 . 24 . 10,92	γ Ursæ Majoris.
55,58	2 . 5 . 25,79	29,716	42,5	39,7	2,16				39 . 52 . 36,23	η Ursæ Maj. R.
	2 . 5 . 27,35								39 . 52 . 37,79	η Ursæ Majoris.
55,71	32 . 59 . 36,86				38,40				70 . 47 . 23,54	η Bootis R.
	32 . 59 . 38,68								70 . 47 . 25,36	η Bootis.
	69 . 5 . 29,03		40,5	37,2	2 . 34,47	0,89	9,324	8,09	106 . 55 . 18,98	Saturn.
	49 . 56 . 0,15	29,766	44,8	44,7	1 . 9,64	9,18	9,133	10,55	87 . 44 . 19,44	Venus.
	33 . 24 . 21,13	29,764	49,7	50,2	38,24	4,64		15 . 49,80	70 . 56 . 13,21	⊙.
	32 . 52 . 41,20				37,48	4,57			70 . 56 . 12,19	⊙.
	42 . 46 . 32,40	29,748	48,7	47,5	53,88	1,13	11,972	19,43	80 . 34 . 14,00	Jupiter.
3,96	− 10 . 24 . 35,63				10,71				27 . 22 . 21,94	α Ursæ Maj. R.
	− 10 . 24 . 34,84								27 . 22 . 22,73	α Ursæ Majoris.
2,57	− 51 . 2 . 26,31		47,5	46,1	1 . 12,17				− 13 . 16 . 30,20	γ Cephei SP. R.
	− 51 . 2 . 28,30								− 13 . 16 . 32,19	γ Cephei SP.
3,18	36 . 43 . 33,91				43,59				74 . 31 . 25,78	β Leonis R.
	36 . 43 . 33,13								74 . 31 . 25,00	β Leonis.
4,30	− 2 . 22 . 57,65				2,43				35 . 24 . 8,20	γ Ursæ Maj. R.
	− 2 . 22 . 56,19								35 . 24 . 9,66	γ Ursæ Majoris.
4,61	− 64 . 53 . 0,35		44,7	42,4	2 . 4,99				− 27 . 7 . 57,06	ε Cassiop. SP. R.
	− 64 . 52 . 58,27								− 27 . 7 . 54,98	ε Cassiopeiæ SP.
	69 . 4 . 44,61		42,0	39,4	2 . 33,84	0,89	10,849	7,71	106 . 54 . 18,13	Saturn.

Coincidence of Micrometer Wire with fixed Wire = $10^{r},091$, $10^{r},096$, $10^{r},099$, $10^{r},102$, $10^{r},107$ at the five wires.
From May 16 = $10^{r},098$, $10^{r},099$, $10^{r},109$, $10^{r},112$, $10^{r},116$.
One Micrometer Revolution = 20″,855.
Correction for Runs = − 0″,8.
Adopted Zenith Point = 336° . 38′ . 54″,80. From May 16 = 336° . 39′ . 3″,57.
Assumed Co-latitude = 37° . 47′ . 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
May 16	(*a*) ☽ N.L.	43 . 50	3 . 20,1	17,9	21,0	20,5	18,5	20,0		- 8,80	43 . 53 . 10,78	G.
	☽ N.L. M.	43 . 50	3 . 20,1	17,9	21,0	20,5	18,5	20,0	10,247	- 3,10 - 4,40	43 . 53 . 12,08	G.
	☽ N.L. M..........	43 . 50	3 . 20,1	17,9	21,0	20,5	18,5	20,0	10,460	- 7,32	43 . 53 . 12,26	G.
	☽ N.L. M.	43 . 50	3 . 20,1	17,9	21,0	20,5	18,5	20,0	10,616	- 10,50 + 4,40	43 . 53 . 13,48	G.
	☽ N.L. M..........	43 . 50	3 . 20,1	17,9	21,0	20,5	18,5	20,0	10,848	- 15,26 + 8,80	43 . 53 . 13,12	G.
	Venus N.L.	26 . 15	0 . 47,2	46,4	49,0	48,8	48,0	48,3			26 . 15 . 47,93	G.
	Polaris R. M......	192 . 50	1 . 27,8	23,3	29,7	28,2	25,5	26,8	8,170	+ 40,44	192 . 52 . 7,29	G.
	Polaris	300 . 25	0 . 62,0	58,0	62,7	61,5	58,4	59,0			300 . 26 . 0,23	G.
May 17	Jupiter N.L.......	19 . 25	0 . 54,5	53,0	54,9	56,5	56,1	54,5			19 . 25 . 54,90	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 23,0	20,3	23,0	23,8	22,9	23,6	9,297	+ 16,93	167 . 3 . 39,61	G.
	α Ursæ Majoris...	326 . 10	4 . 30,3	25,9	29,0	29,0	29,2	28,0			326 . 14 . 28,45	G.
	β Leonis R. M....	119 . 55	1 . 35,2	32,8	32,9	34,7	33,8	34,8	13,201	-1 . 4,48	119 . 55 . 29,52	G.
	β Leonis..........	13 . 20	2 . 37,7	34,0	37,0	37,6	37,2	37,4			13 . 22 . 36,75	G.
	γ Ursæ Maj. R. M.	159 . 0	2 . 29,3	26,2	29,0	30,8	29,5	30,4	11,484	- 28,68	159 . 2 . 0,45	G.
	γ Ursæ Majoris...	334 . 15	1 . 9,0	4,2	9,2	10,4	8,1	9,3			334 . 16 . 8,33	G.
	α^1 Libræ R. M....	89 . 5	3 . 17,5	14,0	17,8	15,9	16,0	16,6	7,474	+ 54,94	89 . 9 . 11,16	G.
	(*b*) α^1 Libræ.........	44 . 5	3 . 57,0	55,8	58,9	55,8	56,8	56,1		- 0,16	44 . 8 . 56,47	G.
	α^2 Libræ R. M....	89 . 5	3 . 17,5	14,0	17,8	15,9	16,0	16,6	15,233	-1 . 46,86	89 . 6 . 29,36	G.
	(*b*) α^2 Libræ M.......	44 . 5	3 . 57,0	55,8	58,9	55,8	56,8	56,1	2,393	+2 . 41,05 - 0,16	44 . 11 . 37,52	G.
	β Ursæ Min. R. M.	179 . 10	4 . 15,6	14,2	16,6	15,3	16,7	13,9	8,784	+ 27,64	179 . 14 . 42,91	G.
	β Ursæ Minoris...	314 . 0	3 . 26,2	22,1	24,5	25,3	23,0	26,0			314 . 3 . 24,43	G.
May 18	⊙ S.L. M.	9 . 35	1 . 22,2	22,8	22,0	25,3	23,7	22,8	10,620	- 10,65	9 . 36 . 12,45	G.
	⊙ N.L............	9 . 0	4 . 34,0	36,0	33,4	36,0	35,3	33,2			9 . 4 . 34,53	G.
	Jupiter S.L.......	19 . 25	2 . 34,9	32,9	35,4	34,6	35,3	34,4			19 . 27 . 34,52	G.
May 22	Jupiter S.L.......	19 . 30	2 . 17,6	15,5	17,8	18,8	17,8	17,2			19 . 32 . 17,15	G.
	(*c*) α Ursæ Maj. R. M.	167 . 0	3 . 42,7	39,8	43,0	42,8	41,5	42,2	10,170	- 1,27	167 . 3 . 40,26	G.
	α Ursæ Majoris...	326 . 10	4 . 29,7	24,9	28,0	28,3	28,5	26,9			326 . 14 . 27,15	G.
	β Leonis R. M....	119 . 55	1 . 27,1	28,8	27,0	30,8	27,0	29,8	12,968	- 59,62	119 . 55 . 28,61	G.
	β Leonis..........	13 . 20	2 . 35,3	37,3	36,8	39,6	39,0	38,0			13 . 22 . 37,33	G.
	γ Ursæ Maj. R. M.	159 . 0	2 . 25,8	26,2	27,0	30,4	27,6	29,4	11,408	- 27,10	159 . 2 . 0,32	G.
	γ Ursæ Majoris...	334 . 15	1 . 1,8	4,0	5,4	9,8	6,0	7,0			334 . 16 . 5,53	G.
	(*d*) Arcturus R. M....	124 . 25	4 . 19,0	22,0	21,2	22,8	20,8	21,4	12,918	- 58,58	124 . 28 . 22,07	G.
	Arcturus..........	8 . 45	4 . 41,2	44,7	46,2	46,8	44,7	44,2			8 . 49 . 44,03	G.
	α Coron. Bor. R. M.	131 . 40	2 . 20,7	23,3	23,0	24,8	22,0	24,4	10,394	- 5,94	131 . 42 . 16,79	G.
	α Coronæ Borealis.	1 . 35	0 . 46,4	48,5	51,4	52,3	49,4	49,4			1 . 35 . 49,47	G.
	Saturn S.L.	45 . 35	2 . 52,3	57,4	55,8	56,8	54,3	56,3			45 . 37 . 55,12	G.
May 26	⊙ S.L. M.	8 . 0	1 . 25,0	26,5	29,2	30,8	29,4	29,2	11,431	- 27,58	8 . 1 . 0,59	G.
	⊙ N.L............	7 . 25	4 . 19,4	21,8	23,7	23,9	22,3	22,3			7 . 29 . 21,68	G.
	β Libræ R. M. ...	95 . 40	1 . 19,8	19,8	22,9	22,8	21,2	21,5	11,380	- 26,51	95 . 40 . 54,66	G.
	β Libræ	37 . 35	2 . 8,7	10,3	11,2	12,9	10,5	13,0			37 . 37 . 10,82	G.
	(*e*) α Coron. Bor. R...	131 . 40	2 . 18,5	20,0	21,7	20,8	19,6	20,9			131 . 42 . 19,97	G.
	α Coronæ Borealis.	1 . 35	0 . 44,0	47,0	49,0	50,1	47,0	48,0			1 . 35 . 47,42	G.
	Saturn S.L.	45 . 30	3 . 56,5	59,2	59,4	59,0	56,6	59,0			45 . 33 . 57,78	G.
	ζ Ursæ Min. R. M.	182 . 40	3 . 18,7	21,3	23,0	23,0	21,8	22,5	11,371	- 26,32	182 . 42 . 54,98	G.
	ζ Ursæ Minoris...	310 . 35	0 . 10,2	10,0	12,2	14,7	9,5	13,8			310 . 35 . 11,70	G.
	α Ophiuchi R. M..	117 . 5	1 . 31,2	30,4	33,0	33,8	29,2	32,0	6,378	+1 . 17,80	117 . 7 . 49,22	G.
	α Ophiuchi	16 . 10	0 . 14,7	17,0	17,8	19,8	15,9	18,9			16 . 10 . 17,32	G.

Runs taken May 28, 23h. (Temp. 60°.)

(*a*) At the five wires. Very faint.
(*b*) At the 5th wire.
(*c*) Too near the fixed wire to allow of a satisfactory bisection.
(*d*) Flaming and unsteady.
(*e*) By accident on tbe fixed wire.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	67.14. 7,21	29,750	42,7	41,3					104.25.16,96	☽.
	67.14. 8,51								104.25.18,26	☽.
	67.14. 8,69				2.19,79	54.26,91		16. 8,59	104.25.18,44	☽.
	67.14. 9,91								104.25.19,66	☽.
	67.14. 9,55								104.25.19,30	☽.
	49.36.44,36		45,5	46,3	1. 8,60	9,04	9,037	11,72	87.25. 3,92	Venus.
3,76	−36.13. 3,72			47,0	42,72				1.33.21,84	Polaris R.
	−36.13. 3,34								1.33.22,22	Polaris.
	42.46.51,33	29,736	50,5	49,6	53,64	1,13	8,319	18,67	80.35.10,79	Jupiter.
4,03	−10.24.36,04				10,66				27.22.21,58	α Ursæ Maj. R.
	−10.24.35,12								27.22.22,50	α Ursæ Majoris.
3,14	36.43.34,05		48,7	47,2	43,47				74.31.25,80	β Leonis R.
	36.43.33,18								74.31.24,93	β Leonis.
4,39	−2.22.56,88				2,43				35.24. 8,97	γ Ursæ Maj. R.
	−2.22.55,24								35.24.10,61	γ Ursæ Majoris.
3,82	67.29.52,41	29,750	42,6	40,7	2.21,76				105.19.22,45	α^1 Libræ R.
	67.29.52,90								105.19.22,94	α^1 Libræ.
3,44	67.32.34,21				2.22,06				105.22. 4,55	α^2 Libræ R.
	67.32.33,95								105.22. 4,29	α^2 Libræ.
3,67	−22.35.39,34				24,60				15.11. 4,34	β Ursæ Min. R.
	−22.35.39,14								15.11. 4,54	β Ursæ Minoris.
	32.57. 8,88	29,792	50,6	51,0	37,56	4,58		15.49,40	70.29. 0,74	☉.
	32.25.30,96				36,81	4,51			70.29. 0,94	☉.
	42.48.30,95	29,844	49,5	48,2	54,04	1,13	11,951	19,21	80.36.12,93	Jupiter.
	42.53.13,58	29,538	53,4	52,9	53,13	1,12	11,930	18,99	80.40.54,88	Jupiter.
3,71	−10.24.36,69				10,52				27.22.21,07	α Ursæ Maj. R.
	−10.24.36,42								27.22.21,34	α Ursæ Majoris.
2,97	36.43.34,96	29,542	52,4	52,1	42,77				74.31.26,01	β Leonis R.
	36.43.33,76								74.31.24,81	β Leonis.
2,93	−2.22.56,75				2,39				35.24. 9,14	γ Ursæ Maj. R.
	−2.22.58,04								35.24. 7,85	γ Ursæ Majoris.
3,05	32.10.41,50	29,590	49,8	48,4	36,40				69.58.26,18	Arcturus R.
	32.10.40,46								69.58.25,14	Arcturus.
3,13	24.56.46,78	29,586	49,5	49,0	26,88				62.44.21,94	α Coron. Bor. R.
	24.56.45,90								62.44.21,06	α Coronæ Bor.
	68.58.51,55				2.29,24	0,89	10,843	7,65	106.48.20,53	Saturn.
	31.21.57,02	30,036	55,4	56,4	35,22	4,37		15.48,10	68.53.48,05	☉.
	30.50.18,11				34,50	4,31			68.53.44,68	☉.
2,74	60.58. 8,91	30,024	46,8	44,1	1.46,33				98.47. 3,52	β Libræ R.
	60.58. 7,25								98.47. 1,86	β Libræ.
3,70	24.56.43,60				27,55				62.44.19,43	α Coron. Bor. R.
	24.56.43,85								62.44.19,68	α Coronæ Bor.
	68.54.54,21				2.32,44	0,89	10,841	7,63	106.44.26,41	Saturn.
3,34	−26. 3.51,41				28,97				11.42.47,90	ζ Ursæ Min. R.
	−26. 3.51,87								11.42.47,44	ζ Ursæ Minoris.
3,27	39.31.14,35	30,000	44,4	42,0	49,00				77.19.11,63	α Ophiuchi R.
	39.31.13,75								77.19.11,03	α Ophiuchi.

Coincidence of Micrometer Wire with fixed Wire = 10^r,098, 10^r,099, 10^r,109, 10^r,112, 10^r,116 at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = − 0″,8. From May 22 = − 3″,8.
Adopted Zenith Point = 336°. 39′. 3″,57.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
May 28	α^2 Libræ R. M....	89. 5	3 . 26,0	25,8	26,0	29,3	27,2	23,2	16,110	-2. 5,14	89. 6 . 20,68	G.
	α^2 Libræ...	44 . 10	1 . 42,3	45,5	43,0	46,0	43,2	40,9			44 . 11 . 43,27	G.
	β Ursæ Min. R. M.	179 . 10	4 . 16,2	18,0	19,3	20,0	18,0	12,3	8,690	+ 29,59	179 . 14 . 46,34	G.
	β Ursæ Minoris...	314. 0	3 . 15,8	17,8	18,0	20,3	16,2	12,8			314. 3 . 16,40	G.
	α Coron. Bor. R. M.	131 . 40	2 . 23,8	26,0	25,7	27,6	25,0	21,2	10,465	- 7,43	131 . 42 . 17,15	G.
	α Coronæ Borealis.	1 . 35	0 . 45,5	46,5	49,8	51,1	48,5	43,3			1 . 35 . 47,35	G.
	(*a*) Saturn S.L........	45 . 30	2. 9,8	12,1	10,3	12,4	9,2	7,7			45 . 32. 9,97	G.
	ζ Ursæ Min. R. M.	182 . 40	3 . 33,0	33,5	35,0	37,0	35,2	32,0	11,930	- 37,98	182 . 42 . 55,85	G.
	ζ Ursæ Minoris ...	310 . 35	0. 6,8	6,7	8,3	11,3	8,6	3,4			310 . 35. 7,50	G.
	δ Ursæ Min. R. M.	191. 0	2 . 20,7	21,5	22,8	25,0	22,4	18,3	15,038	- 1 . 42,80	191. 0 . 38,68	G.
	δ Ursæ Minoris ...	302 . 15	2 . 25,3	26,1	26,0	27,8	24,8	22,2			302 . 17 . 25,07	G.
	α Lyræ R. M......	143. 0	4 . 17,6	19,0	20,8	20,3	19,0	15,7	9,963	+ 3,05	143. 4 . 21,23	G.
	α Lyræ	350 . 10	3 . 42,1	44,8	46,0	46,1	44,0	38,4			350 . 13 . 43,10	G.
May 29	(*b*) ⊙ N.L. M.	6 . 55	4 . 29,8	31,7	31,2	35,3	31,7	27,8	9,920	+ 3,94	6 . 59 . 34,62	G.
	⊙ S.L.	7 . 30	1. 5,4	6,3	9,8	12,6	8,2	4,8			7 . 31. 7,70	G.
	(*c*) ☽ N.L............	10 . 30	4 . 20,1	22,0	22,8	24,5	24,2	18,0		+ 6,76	10 . 34 . 28,14	G.
	☽ N.L. M.........	10 . 30	4 . 20,1	22,0	22,8	24,5	24,2	18,0	9,987	+ 2,34 + 3,38	10 . 34 . 27,10	G.
	☽ N.L. M.........	10 . 30	4 . 20,1	22,0	22,8	24,5	24,2	18,0	9,745	+ 7,59	10 . 34 . 28,97	G.
	☽ N.L. M.........	10 . 30	4 . 20,1	22,0	22,8	24,5	24,2	18,0	9,619	+ 10,27 - 3,38	10 . 34 . 28,27	G.
	☽ N.L. M.........	10 . 30	4 . 20,1	22,0	22,8	24,5	24,2	18,0	9,468	+ 13,51 - 6,76	10 . 34 . 28,13	G.
	Jupiter N.L.......	19 . 40	2 . 20,8	22,0	21,3	25,0	24,2	18,4			19 . 42 . 21,65	G.
	β Ursæ Min. R. M.	179 . 10	4 . 16,2	18,9	19,7	20,6	22,0	14,5	8,763	+ 28,08	179 . 14 . 46,18	G.
	β Ursæ Minoris...	314. 0	3 . 15,3	16,4	17,0	19,8	17,7	13,8			314. 3 . 16,25	G.
	Saturn N.L.......	45 . 30	0 . 56,1	59,8	58,5	62,1	59,8	56,8			45 . 30 . 58,72	G.
May 30	(*d*) ☽ N.L.	15 . 35	0 . 55,3	58,1	58,4	62,0	59,7	52,8		+ 7,40	15 . 36. 5,00	G.
	☽ N.L. M.........	15 . 35	0 . 55,3	58,1	58,4	62,0	59,7	52,8	9,923	+ 3,67 + 3,70	15 . 36. 4,97	G.
	☽ N.L. M.........	15 . 35	0 . 55,3	58,1	58,4	62,0	59,7	52,8	9,760	+ 7,28	15 . 36. 4,88	G.
	☽ N.L. M.........	15 . 35	0 . 55,3	58,1	58,4	62,0	59,7	52,8	9,550	+ 11,72 - 3,70	15 . 36. 5,62	G.
	☽ N.L. M.........	15 . 35	0 . 55,3	58,1	58,4	62,0	59,7	52,8	9,361	+ 15,74 - 7,40	15 . 36. 5,94	G.
	α Ursæ Maj. R. M.	167. 0	3 . 51,2	52,2	54,9	55,3	54,0	48,5	10,790	- 14,20	167. 3 . 37,98	G.
	α Ursæ Majoris...	326 . 10	4 . 23,0	24,6	25,1	26,5	28,3	19,6			326 . 14 . 23,97	G.
	Polaris SP. R. M...	195 . 55	4 . 23,1	24,0	25,0	25,8	26,0	20,2	11,897	- 37,29	195 . 58 . 46,18	G.
	Polaris SP.........	297 . 15	4 . 15,2	16,0	15,4	17,7	15,0	11,9			297 . 19 . 14,67	G.
	δ Ursæ Min. R. M.	191. 0	2 . 21,1	25,5	24,8	27,3	26,2	20,6	15,184	- 1 . 45,84	191. 0 . 38,11	G.
	δ Ursæ Minoris...	302 . 15	2 . 24,3	27,8	24,4	27,0	24,8	21,2			302 . 17 . 24,62	G.
	α Lyræ R. M......	143. 0	4 . 14,8	20,0	18,4	18,7	18,4	13,7	9,873	+ 4,93	143. 4 . 21,71	G.
	α Lyræ	350 . 10	3 . 40,3	39,2	44,0	44,5	42,7	36,8			350 . 13 . 40,78	G.
June 2	⊙ S.L. M.........	6 . 55	2 . 21,4	22,0	24,0	24,7	23,9	18,0	12,116	- 41,97	6 . 56 . 40,05	G.
	⊙ N.L............	6 . 25	0. 4,8	5,0	7,8	8,7	6,3	0,9			6 . 25. 5,57	G.
	Saturn S.L.	45 . 25	2 . 35,6	36,0	37,3	39,7	37,3	34,7			45 . 27 . 36,40	G.
	α Serpentis R. M..	111 . 20	2 . 36,1	34,8	37,2	39,8	35,2	32,0	7,934	+ 45,23	111 . 23 . 20,71	G.
	α Serpentis	21 . 50	4 . 41,7	44,0	43,8	45,2	42,6	39,2			21 . 54 . 42,08	G.

No assignable cause for change of Zenith Point.
Coincidences at the five wires and Runs taken June 5, 1^h. (Temp. 63°,5.)

(*a*) Cloudy.
(*b*) Seen through clouds. The observation was more satisfactory than usual.
(*c*) At the five wires: the 1st faint, the 2nd and 4th clouded.
(*d*) At the five wires.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
1,98	67 . 32 . 40,80	29,506	54,0	54,0	2 . 17,11				105 . 22 . 6,19	α^2 Libræ R.
	67 . 32 . 41,79								105 . 22 . 7,18	α^2 Libræ.
1,37	– 22 . 35 . 44,86				23,75				15 . 10 . 59,67	β Ursæ Min. R.
	– 22 . 35 . 45,08								15 . 10 . 59,45	β Ursæ Minoris.
2,25	24 . 56 . 44,33		53,6	52,2	26,63				62 . 44 . 19,24	α Coron. Bor. R.
	24 . 56 . 45,87								62 . 44 . 20,78	α Coronæ Bor.
	68 . 53 . 8,49				2 . 27,13	0,89	10,850	7,72	106 . 42 . 35,29	Saturn.
1,68	– 26 . 3 . 54,37				28,01				11 . 42 . 45,90	ζ Ursæ Min. R.
	– 26 . 3 . 53,98								11 . 42 . 46,29	ζ Ursæ Minoris.
1,88	– 34 . 21 . 37,20	29,492	50,6	49,3	39,35				3 . 24 . 51,73	δ Ursæ Min. R.
	– 34 . 21 . 36,41								3 . 24 . 52,52	δ Ursæ Minoris.
2,16	13 . 34 . 40,25				13,91				51 . 22 . 2,44	α Lyræ R.
	13 . 34 . 41,62								51 . 22 . 3,81	α Lyræ.
	30 . 20 . 33,14	29,552	59,6	60,1	33,04	4,24		15 . 47,60	68 . 23 . 57,82	☉.
	30 . 52 . 6,22				33,73	4,31			68 . 23 . 56,32	☉.
	33 . 55 . 26,66	29,562	61,6	61,5					71 . 27 . 48,42	☽.
	33 . 55 . 25,62								71 . 27 . 47,38	☽.
	33 . 55 . 27,49				37,86	30 . 18,15		14 . 53,77	71 . 27 . 49,25	☽.
	33 . 55 . 26,79								71 . 27 . 48,55	☽.
	33 . 55 . 26,65								71 . 27 . 48,41	☽.
	43 . 3 . 20,17				52,57	1,10	8,410	17,72	80 . 51 . 37,64	Jupiter.
1,22	– 22 . 35 . 44,70	29,594	54,5	53,8	23,82				15 . 10 . 59,76	β Ursæ Min. R.
	– 22 . 35 . 45,23								15 . 10 . 59,23	β Ursæ Minoris.
	68 . 51 . 57,24	29,600		53,2	2 . 27,14	0,89	9,384	7,56	106 . 41 . 39,33	Saturn.
	38 . 57 . 3,52	29,754	61,6	62,5					76 . 25 . 48,21	☽.
	38 . 57 . 3,49								76 . 25 . 48,18	☽.
	38 . 57 . 3,40				45,70	33 . 57,94		14 . 48,65	76 . 25 . 48,09	☽.
	38 . 57 . 4,14								76 . 25 . 48,83	☽.
	38 . 57 . 4,46								76 . 25 . 49,15	☽.
0,98	– 10 . 24 . 36,50			62,3	10,40				27 . 22 . 21,38	α Ursæ Maj. R.
	– 10 . 24 . 37,51								27 . 22 . 20,37	α Ursæ Majoris.
0,43	– 39 . 19 . 44,70	29,780	59,0	58,4	46,73				– 1 . 33 . 23,15	Polaris SP. R.
	– 39 . 19 . 46,81								– 1 . 33 . 25,26	Polaris SP.
1,37	– 34 . 21 . 36,63	29,782	53,4	49,9	39,68				3 . 24 . 51,97	δ Ursæ Min. R.
	– 34 . 21 . 36,86								3 . 24 . 51,74	δ Ursæ Minoris.
1,25	13 . 34 . 39,77				14,02				51 . 22 . 2,07	α Lyræ R.
	13 . 34 . 39,30								51 . 22 . 1,60	α Lyræ.
	30 . 17 . 38,57	29,722	57,3	57,9	33,31	4,23		15 . 47,10	67 . 49 . 28,83	☉.
	29 . 46 . 4,09				32,61	4,17			67 . 49 . 27,91	☉.
	68 . 48 . 34,92	29,684	56,5	54,5	2 . 26,73	0,89	10,894	8,25	106 . 38 . 0,79	Saturn.
1,40	45 . 15 . 40,77				57,80				83 . 3 . 46,85	α Serpentis R.
	45 . 15 . 40,60								83 . 3 . 46,68	α Serpentis.

Coincidence of Micrometer Wire with fixed Wire = 10^{r},098, 10^{r},099, 10^{r},109, 10^{r},112, 10^{r},116 at the five wires.
From June 2 = 10^{r},099, 10^{r},098, 10^{r},103, 10^{r},110, 10^{r},110.
One Micrometer Revolution = 20″,855.
Correction for Runs = – 3″,8. From June 2 = – 4″,2.
Adopted Zenith Point from May 28 = 336°. 39′. 1″,48.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
June 4	(a) ☽ N.L.	44 . 5	4 . 36,1	38,1	38,8	40,0	39,8	34,1		+ 7,60	44 . 9 . 44,77	G.
	☽ N.L. M.	44 . 5	4 . 36,1	38,1	38,8	40,0	39,8	34,1	9,924	+ 3,63 + 3,80	44 . 9 . 44,60	G.
	☽ N.L. M.	44 . 5	4 . 36,1	38,1	38,8	40,0	39,8	34,1	9,678	+ 9,00 − 3,80	44 . 9 . 42,37	G.
	☽ N.L. M.	44 . 5	4 . 36,1	38,1	38,8	40,0	39,8	34,1	9,430	+ 14,18 − 7,60	44 . 9 . 43,75	G.
	2 Libræ	39 . 45	3 . 28,8	28,1	30,0	31,7	28,8	26,9			39 . 48 . 28,57	G.
	α Coron. Bor. R. M.	131 . 40	2 . 23,8	20,8	25,3	25,4	23,2	19,8	10,332	− 4,79	131 . 42 . 17,93	G.
	α Coronæ Borealis.	1 . 35	0 . 43,3	42,4	48,0	48,7	44,9	41,0			1 . 35 . 44,62	G.
	Saturn S.L.	45 . 25	0 . 49,8	50,0	53,0	54,3	53,4	49,4			45 . 25 . 51,53	G.
	ζ Ursæ Min. R. M.	182 . 40	3 . 48,3	50,1	52,6	52,8	50,3	45,9	12,568	− 51,39	182 . 42 . 58,08	G.
	ζ Ursæ Minoris	310 . 35	0 . 3,7	2,6	6,7	8,8	3,3	2,6			310 . 35 . 4,62	G.
	η Draconis R. M.	166 . 20	0 . 12,3	13,0	16,8	17,4	14,2	10,4	14,203	− 1 . 25,50	166 . 18 . 48,48	G.
	η Draconis	326 . 55	4 . 14,7	13,9	17,0	18,3	15,0	11,8			326 . 59 . 14,52	G.
	ε Ursæ Min. R. M.	186 . 40	4 . 17,5	19,0	20,8	22,9	20,4	16,2	14,000	− 1 . 21,27	186 . 42 . 57,60	G.
	ε Ursæ Minoris	306 . 35	0 . 5,2	4,1	7,0	9,2	2,8	2,8			306 . 35 . 5,17	G.
	Juno	33 . 35	0 . 58,5	58,5	61,7	63,4	59,5	58,0			33 . 35 . 59,80	G.
	δ Ursæ Min. R. M.	191 . 0	2 . 19,2	20,4	22,8	25,0	21,7	18,3	14,882	− 1 . 39,67	191 . 0 . 41,25	G.
	δ Ursæ Minoris	302 . 15	2 . 24,7	20,8	24,7	26,0	21,8	21,0			302 . 17 . 22,83	G.
	α Lyræ R. M.	143 . 0	4 . 18,9	21,0	23,0	22,3	20,5	16,9	9,960	+ 2,98	143 . 4 . 22,81	G.
	α Lyræ	350 . 10	3 . 39,3	39,4	43,9	44,3	40,0	36,0			350 . 13 . 39,98	G.
June 5	Jupiter N.L.	19 . 55	0 . 61,0	60,5	62,8	66,1	62,0	58,7			19 . 56 . 1,72	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 44,3	44,5	48,0	47,4	47,7	40,5	10,468	− 7,61	167 . 3 . 37,26	G.
	α Ursæ Majoris	326 . 10	4 . 25,2	24,7	26,3	29,3	27,6	22,0			326 . 14 . 25,23	G.
	(b) α^1 Libræ R. M.	89 . 5	3 . 22,9	24,3	23,1	27,0	24,0	20,0	8,162	+ 40,42 + 0,16	89 . 9 . 3,65	G.
	α^1 Libræ	44 . 5	3 . 57,0	61,8	60,4	62,4	60,0	55,4		− 0,16	44 . 8 . 58,79	G.
	(b) α^2 Libræ R. M.	89 . 5	3 . 22,9	24,3	23,1	27,0	24,0	20,0	15,882	− 2 . 0,58 + 0,16	89 . 6 . 22,65	G.
	α^2 Libræ M.	44 . 5	3 . 57,0	61,8	60,4	62,4	60,0	55,4	2,345	+ 2 . 41,72 − 0,16	44 . 11 . 40,51	G.
	(c) ☽ N.L.	49 . 10	3 . 18,0	22,2	20,2	23,0	20,0	16,0		+ 6,84	49 . 13 . 26,27	G.
	☽ N.L. M.	49 . 10	3 . 18,0	22,2	20,2	23,0	20,0	16,0	9,954	+ 3,00 + 3,42	49 . 13 . 25,85	G.
	☽ N.L. M.	49 . 10	3 . 18,0	22,2	20,2	23,0	20,0	16,0	9,830	+ 5,70	49 . 13 . 25,13	G.
	☽ N.L. M.	49 . 10	3 . 18,0	22,2	20,2	23,0	20,0	16,0	9,704	+ 8,46 − 3,42	49 . 13 . 24,47	G.
	☽ N.L. M.	49 . 10	3 . 18,0	22,2	20,2	23,0	20,0	16,0	9,540	+ 11,89 − 6,84	49 . 13 . 24,48	G.
June 6	Jupiter S.L.	19 . 55	3 . 48,0	48,0	50,2	51,0	49,0	43,7			19 . 58 . 47,78	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 42,8	43,2	46,3	47,2	43,7	39,4	10,332	− 4,79	167 . 3 . 38,46	G.
	α Ursæ Majoris	326 . 10	4 . 26,1	24,2	27,8	29,0	27,7	21,7			326 . 14 . 25,47	G.
	γ Ursæ Maj. R. M.	159 . 0	2 . 21,2	20,7	24,5	26,3	23,0	18,0	11,068	− 20,12	159 . 2 . 1,83	G.
	γ Ursæ Majoris	334 . 15	1 . 3,8	1,5	5,9	7,8	3,8	0,0			334 . 16 . 3,65	G.
June 7	⊙ N.L. M.	5 . 50	1 . 36,8	39,0	41,0	42,1	40,2	34,4	12,794	− 56,11	5 . 50 . 42,57	G.
	⊙ S.L.	6 . 20	2 . 13,0	16,4	17,2	18,2	16,1	10,4			6 . 22 . 14,90	G.
	(d) Jupiter N.L.	20 . 0	0 . 25,2	23,2	26,8	28,8	25,4	22,0		+ 0,13	20 . 0 . 25,31	G.
	γ Ursæ Maj. R. M.	159 . 0	2 . 23,5	22,9	27,5	28,0	24,4	21,1	11,159	− 22,03	159 . 2 . 2,20	G.
	γ Ursæ Majoris	334 . 15	1 . 3,3	0,7	6,8	7,6	4,1	0,0			334 . 16 . 3,60	G.
	Spica R. M.	94 . 5	4 . 21,8	23,0	25,0	26,0	23,3	18,4	11,165	− 22,15	94 . 9 . 0,15	G.
	Spica	39 . 5	4 . 3,4	7,8	7,8	7,8	4,3	1,5			39 . 9 . 4,87	G.

(a) At 1st, 2nd, 4th and 5th wires. Cloudy.
(b) At 1st and 5th wires.
(c) At the five wires.

(d) At the comb. Correction for change of N.P.D. = − 0″,08.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	67 . 30 . 43,29	29,710	57,6	56,8	2 . 17,03	50 . 58,75		15 . 4,99	104 . 44 . 14,84	☽.
	67 . 30 . 43,12								104 . 44 . 14,67	☽.
	67 . 30 . 40,89								104 . 44 . 12,44	☽.
	67 . 30 . 42,27								104 . 44 . 13,82	☽.
	63 . 9 . 27,09				1 . 52,35				100 . 58 . 27,72	2 Libræ.
1,28	24 . 56 . 43,55	29,726	56,0	54,8	26,69				62 . 44 . 18,52	α Coron. Bor. R.
	24 . 56 . 43,14								62 . 44 . 18,11	α Coronæ Bor.
	68 . 46 . 50,05				2 . 26,65	0,89	10,900	8,32	106 . 36 . 15,77	Saturn.
1,35	− 26 . 3 . 56,60				28,07				11 . 42 . 43,61	ζ Ursæ Min. R.
	− 26 . 3 . 56,86								11 . 42 . 43,35	ζ Ursæ Minoris.
1,50	− 9 . 39 . 47,00				9,77				28 . 7 . 11,51	η Draconis R.
	− 9 . 39 . 46,96								28 . 7 . 11,55	η Draconis.
1,39	− 30 . 3 . 56,12	29,732	54,1	51,5	33,44				7 . 42 . 38,72	ε Ursæ Min. R.
	− 30 . 3 . 56,31								7 . 42 . 38,53	ε Ursæ Minoris.
	56 . 56 . 58,32		53,4	50,6	1 . 28,72	3,18			94 . 45 . 32,14	Juno.
2,04	− 34 . 21 . 39,77				39,56				3 . 24 . 48,95	δ Ursæ Min. R.
	− 34 . 21 . 38,65								3 . 24 . 50,07	δ Ursæ Minoris.
1,39	13 . 34 . 38,67				13,98				51 . 22 . 0,93	α Lyræ R.
	13 . 34 . 38,50								51 . 22 . 0,76	α Lyræ.
	43 . 17 . 0,24	29,838	61,8	61,2	53,51	1,08	8,464	17,09	81 . 5 . 18,04	Jupiter.
1,24	− 10 . 24 . 35,78				10,45				27 . 22 . 22,05	α Ursæ Maj. R.
	− 10 . 24 . 36,25								27 . 22 . 21,58	α Ursæ Majoris.
1,22	67 . 29 . 57,83	29,882	58,4	57,0	2 . 17,68				105 . 19 . 23,79	α^1 Libræ R.
	67 . 29 . 57,31								105 . 19 . 23,27	α^1 Libræ.
1,58	67 . 32 . 38,83				2 . 17,98				105 . 22 . 5,09	α^2 Libræ R.
	67 . 32 . 39,03								105 . 22 . 5,29	α^2 Libræ.
	72 . 34 . 24,81				3 . 0,77	53 . 13,03		15 . 14,57	109 . 46 . 35,40	☽.
	72 . 34 . 24,37								109 . 46 . 34,96	☽.
	72 . 34 . 23,65								109 . 46 . 34,24	☽.
	72 . 34 . 22,99								109 . 46 . 33,58	☽.
	72 . 34 . 23,00								109 . 46 . 33,59	☽.
	43 . 19 . 45,51	30,036	56,8	55,8	54,53	1,08	11,837	18,08	81 . 7 . 29,16	Jupiter.
1,97	− 10 . 24 . 36,19				10,63				27 . 22 . 21,46	α Ursæ Maj. R.
	− 10 . 24 . 36,80								27 . 22 . 20,85	α Ursæ Majoris.
2,74	− 2 . 22 . 59,56	30,050	56,4	55,2	2,41				35 . 24 . 6,31	γ Ursæ Maj. R.
	− 2 . 22 . 58,62								35 . 24 . 7,25	γ Ursæ Majoris.
	29 . 11 . 40,30	30,116	55,2	55,3	32,45	4,09		15 . 46,50	67 . 15 . 3,44	⊙.
	29 . 43 . 12,63				33,15	4,16			67 . 15 . 3,40	⊙.
	43 . 21 . 23,04	30,040	57,0	56,5	54,52	1,08	8,360	18,29	81 . 9 . 43,05	Jupiter.
2,90	− 2 . 22 . 59,93		55,6	54,6	2,41				35 . 24 . 5,94	γ Ursæ Maj. R.
	− 2 . 22 . 58,67								35 . 24 . 7,20	γ Ursæ Majoris.
2,51	62 . 30 . 2,12		53,6	52,1	1 . 51,52				100 . 19 . 1,92	Spica R.
	62 . 30 . 2,60								100 . 19 . 2,40	Spica.

Coincidence of Micrometer Wire with fixed Wire = 10^r,099, 10^r,098, 10^r,103, 10^r,110, 10^r,110 at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = − 4″,2.
Adopted Zenith point = 336°. 39′. 1″,48. From June 6 = 336°. 39′. 2″,27.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
June 7	η Ursæ Maj. R. M.	154 . 30	4 . 17,9	19,8	22,4	21,5	20,0	15,2	12,000	− 39,57	154 . 33 . 39,30	G.
	η Ursæ Majoris...	338 . 40	4 . 22,9	24,3	27,3	28,6	23,0	21,3			338 . 44 . 23,95	G.
	η Bootis R. M.....	123 . 35	3 . 29,1	31,0	32,8	33,4	30,6	26,6	7,372	+ 56,94	123 . 39 . 27,02	G.
	η Bootis..........	9 . 35	3 . 36,8	39,1	41,0	41,9	37,0	34,8			9 . 38 . 37,93	G.
	(*a*) ☽ S.L............	56 . 55	1 . 51,1	54,8	56,2	54,9	52,8	48,8		+ 3,44	56 . 56 . 56,27	G.
	☽ S.L. M.........	56 . 55	1 . 51,1	54,8	56,2	54,9	52,8	48,8	9,933	+ 3,44 + 1,72	56 . 56 . 57,99	G.
	☽ S.L. M.........	56 . 55	1 . 51,1	54,8	56,2	54,9	52,8	48,8	9,830	+ 5,70	56 . 56 . 58,53	G.
	☽ S.L. M.........	56 . 55	1 . 51,1	54,8	56,2	54,9	52,8	48,8	9,794	+ 6,60 − 1,72	56 . 56 . 57,71	G.
	☽ S.L. M.........	56 . 55	1 . 51,1	54,8	56,2	54,9	52,8	48,8	9,730	+ 7,93 − 3,44	56 . 56 . 57,32	G.
	θ Ophiuchi........	53 . 35	2 . 43,0	46,0	46,0	48,0	43,7	40,5			53 . 37 . 44,15	G.
	3 Sagittarii........	56 . 30	2 . 19,0	19,8	21,0	22,9	18,8	17,0			56 . 32 . 19,43	G.
June 8	Jupiter S.L.......	20 . 0	3 . 19,1	19,0	21,0	22,3	20,4	14,9			20 . 3 . 18,98	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 39,1	40,2	43,7	43,7	41,8	36,2	10,168	− 1,35	167 . 3 . 38,93	G.
	α Ursæ Majoris...	326 . 10	4 . 26,5	25,8	28,9	30,0	28,0	22,1			326 . 14 . 26,25	G.
	β Leonis R. M....	119 . 55	1 . 21,4	21,7	22,7	25,2	21,5	16,3	12,562	− 51,27	119 . 55 . 30,00	G.
	β Leonis.........	13 . 20	2 . 34,0	34,0	36,2	38,4	36,3	30,8			13 . 22 . 34,58	G.
	γ Ursæ Maj. R. M.	159 . 0	2 . 29,6	30,5	33,8	35,9	32,3	26,8	11,608	− 31,38	159 . 1 . 59,75	G.
	γ Ursæ Majoris...	334 . 15	1 . 2,9	2,3	6,8	8,8	4,9	0,0			334 . 16 . 4,13	G.
	Saturn S.L........	45 . 20	2 . 28,3	29,7	30,0	32,2	29,4	26,4			45 . 22 . 28,98	G.
	θ Ophiuchi........	53 . 35	2 . 40,5	41,0	42,8	43,8	41,8	38,8			53 . 37 . 41,07	G.
	3 Sagittarii........	56 . 30	2 . 21,3	20,3	23,4	22,8	22,3	18,0			56 . 32 . 21,02	G.
	(*b*) ☽ S.L..............	58 . 20	0 . 28,0	27,7	30,0	30,2	28,7	26,5		+ 0,70	58 . 20 . 29,15	G.
	☽ S.L. M.........	58 . 20	0 . 28,0	27,7	30,0	30,2	28,7	26,5	10,176	− 1,64 + 0,35	58 . 20 . 27,16	G.
	☽ S.L. M.........	58 . 20	0 . 28,0	27,7	30,0	30,2	28,7	26,5	10,191	− 1,84	58 . 20 . 26,61	G.
	☽ S.L. M.........	58 . 20	0 . 28,0	27,7	30,0	30,2	28,7	26,5	10,164	− 1,12 − 0,35	58 . 20 . 26,98	G.
	☽ S.L. M.........	58 . 20	0 . 28,0	27,7	30,0	30,2	28,7	26,5	10,048	+ 1,29 − 0,70	58 . 20 . 27,86	G.
	δ Sagittarii........	58 . 35	3 . 36,8	37,5	41,0	38,6	38,3	34,8			58 . 38 . 37,33	G.
	δ Ursæ Min. R. M.	191 . 0	2 . 21,0	20,8	23,3	24,8	23,0	18,9	14,832	− 1 . 38,63	191 . 0 . 43,00	G.
	δ Ursæ Minoris...	302 . 15	2 . 24,8	23,1	25,3	27,0	19,8	21,6			302 . 17 . 23,27	G.
	(*c*) α Lyræ R. M......	143 . 0	4 . 6,6	7,9	11,2	10,0	6,8	3,8	9,205	+ 18,73	143 . 4 . 25,88	G.
	α Lyræ...........	350 . 10	3 . 38,9	38,0	42,8	42,3	38,0	35,6			350 . 13 . 38,77	G.
	φ Sagittarii.......	55 . 55	0 . 50,1	50,0	53,7	52,8	50,8	48,2			55 . 55 . 50,82	G.
June 9	(*d*) Jupiter N.L......	20 . 5	0 . 3,6	3,9	6,2	10,0	7,1	1,8			20 . 5 . 5,42	G.
	Saturn N.L.......	45 . 20	1 . 25,0	27,9	26,8	29,7	28,4	25,4			45 . 21 . 27,00	G.
	(*e*) α Lyræ R. M......	143 . 0	4 . 9,1	11,8	13,2	13,0	12,3	6,8	9,444	+ 13,88 − 0,48	143 . 4 . 23,85	G.
	(*f*) α Lyræ...........	350 . 10	3 . 36,9	37,7	40,0	40,8	38,3	34,9		+ 1,92	350 . 13 . 39,52	G.
June 11	Mercury, center...	12 . 35	1 . 47,5	47,2	49,9	50,8	48,8	44,1			12 . 36 . 47,92	G.
June 12	⊙ S.L. M.........	5 . 55	4 . 15,2	18,6	19,9	20,3	19,2	12,2	14,416	− 1 . 29,87	5 . 57 . 47,36	G.
	⊙ N.L............	5 . 25	1 . 13,2	15,0	17,0	18,8	17,5	11,5			5 . 26 . 15,40	G.
	Jupiter S.L.......	20 . 10	2 . 59,7	64,0	64,0	66,8	64,5	58,0			20 . 13 . 2,60	G.
	β Ursæ Min. R. M.	179 . 10	4 . 20,0	21,8	22,0	23,2	23,0	16,9	8,737	+ 28,58	179 . 14 . 49,40	G.
	β Ursæ Minoris...	314 . 0	3 . 12,4	14,7	14,0	15,8	13,3	9,7			314 . 3 . 13,07	G.
	(*g*) β Libræ R. M.....	95 . 40	1 . 22,3	24,0	22,0	26,3	22,4	19,8	11,768	− 34,64	95 . 40 . 48,06	G.
	β Libræ..........	37 . 35	2 . 11,7	13,7	12,7	14,9	13,3	10,0			37 . 37 . 12,55	G.

Coincidence at middle Wire and Runs taken June 18, 1h. (Temp. 66°,5). The Runs were taken twice and the mean of the two results is used.

(*a*) At the five wires. Very badly defined and unsteady.

(*b*) At the five wires. Bad limb and very little motion in declination: should have been taken at all the wires with the Micrometer.

(*c*) A blur and blazing.

(*d*) Very cloudy.

(*e*) At 5th wire. Very faint.

(*f*) Four intervals past middle wire.

(*g*) Not used for determining the Zenith Point.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N.P.D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
1,63	2 . 5 . 22,97	30,040	53,6	52,1	2,13				39 . 52 . 33,38	η Ursæ Maj. R.
	2 . 5 . 21,68								39 . 52 . 32,09	η Ursæ Majoris.
2,48	32 . 59 . 35,25				37,84				70 . 47 . 21,37	η Bootis R.
	32 . 59 . 35,66								70 . 47 . 21,78	η Bootis.
	80 . 17 . 54,00	30,090	48,3	46,0					116 . 58 . 44,25	☽.
	80 . 17 . 55,72								116 . 58 . 45,97	☽.
	80 . 17 . 56,26				5 . 33,10	56 . 15,74		15 . 35,39	116 . 58 . 46,51	☽.
	80 . 17 . 55,44								116 . 58 . 45,69	☽.
	80 . 17 . 55,05								116 . 58 . 45,30	☽.
	76 . 58 . 41,88				4 . 10,35				114 . 50 . 0,51	θ Ophiuchi.
	79 . 53 . 17,16		47,8	45,8	5 . 20,44				117 . 45 . 45,88	3 Sagittarii.
	43 . 24 . 16,71	30,184	52,8	52,3	55,34	1,07	11,805	17,75	81 . 12 . 1,51	Jupiter.
2,59	− 10 . 24 . 36,66				10,76				27 . 22 . 20,86	α Ursæ Maj. R.
	− 10 . 24 . 36,02								27 . 22 . 21,50	α Ursæ Majoris.
2,29	36 . 43 . 32,27		52,6	51,7	43,72				74 . 31 . 24,27	β Leonis R.
	36 . 43 . 32,31								74 . 31 . 24,31	β Leonis.
1,94	− 2 . 22 . 57,48				2,44				35 . 24 . 8,36	γ Ursæ Maj. R.
	− 2 . 22 . 58,14								35 . 24 . 7,70	γ Ursæ Majoris.
	68 . 43 . 26,71		49,7	47,4	2 . 30,74	0,88	10,912	8,44	106 . 32 . 56,41	Saturn.
	76 . 58 . 38,80	30,172	47,0	44,5	4 . 11,82				114 . 49 . 58,90	θ Ophiuchi.
	79 . 53 . 18,75				5 . 22,22				117 . 45 . 49,25	3 Sagittarii.
	81 . 41 . 26,88								118 . 22 . 12,83	☽.
	81 . 41 . 24,89								118 . 22 . 10,84	☽.
	81 . 41 . 24,34				6 . 27,50	57 . 4,56		15 . 45,27	118 . 22 . 10,29	☽.
	81 . 41 . 24,71								118 . 22 . 10,66	☽.
	81 . 41 . 25,59								118 . 22 . 11,54	☽.
	81 . 59 . 35,06				6 . 40,98				119 . 53 . 24,32	δ Sagittarii.
3,14	− 34 . 21 . 40,73				40,65				3 . 24 . 46,90	δ Ursæ Min. R.
	− 34 . 21 . 39,00								3 . 24 . 48,63	δ Ursæ Minoris.
2,33	13 . 34 . 36,39				14,36				51 . 21 . 59,03	α Lyræ R.
	13 . 34 . 36,50								51 . 21 . 59,14	α Lyræ.
	79 . 16 . 48,55				5 . 4,64				117 . 9 . 1,47	φ Sagittarii.
	43 . 26 . 3,15	29,974	59,6	59,9	54,18	1,07	8,455	17,18	81 . 14 . 21,72	Jupiter.
	68 . 42 . 24,73	29,922	52,6	51,4	2 . 28,10	0,88	9,354	7,82	106 . 32 . 8,05	Saturn.
1,69	13 . 34 . 38,42	29,850	50,4	49,6	14,07				51 . 22 . 0,77	α Lyræ R.
	13 . 34 . 37,25								51 . 21 . 59,60	α Lyræ.
	35 . 57 . 45,65	29,508	58,3	60,1	40,88	6,10			73 . 45 . 28,71	Mercury.
	29 . 18 . 45,09	29,522	60,4	62,4	31,52	4,10		15 . 46,00	66 . 50 . 34,79	⊙.
	28 . 47 . 13,13				30,84	4,03			66 . 50 . 34,22	⊙.
	43 . 34 . 0,33	29,552	59,5	61,7	53,48	1,06	11,788	17,53	81 . 21 . 43,50	Jupiter.
1,24	− 22 . 35 . 47,13	29,610	57,3	56,5	23,71				15 . 10 . 57,44	β Ursæ Min. R.
	− 22 . 35 . 49,20								15 . 10 . 55,37	β Ursæ Minoris.
0,31	60 . 58 . 14,21			55,0	1 . 42,55				98 . 47 . 5,04	β Libræ R.
	60 . 58 . 10,28								98 . 47 . 1,11	β Libræ.

Coincidence of Micrometer Wire with fixed Wire $= 10^r,099$, $10^r,098$, $10^r,103$, $10^r,110$, $10^r,110$ at the five wires.
From June 11 $= 10^r,107$ at the middle Wire.

One Micrometer Revolution $= 20'',855$.

Correction for Runs $= -4'',2$. From June 11 $= -2'',3$.

Adopted Zenith Point $= 336^\circ . 39' . 2'',27$.

Assumed Co-latitude $= 37^\circ . 47' . 8'',28$.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes. A	B	C	D	E	F	Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
June 12	(a) Saturn S.L........	45 . 15	4 . 27,0	31,0	28,3	29,9	30,3	25,0		− 0,18	45 . 19 . 28,05	G.
	ζ Ursæ Min. R. M.	182 . 40	3 . 31,3	34,4	34,2	35,8	34,4	30,3	11,708	− 33,39	182 . 42 . 59,74	G.
	ζ Ursæ Minoris...	310 . 35	0 . 3,4	4,4	5,0	8,7	3,7	1,8			310 . 35 . 4,50	G.
	δ Ophiuchi R. M...	101 . 10	0 . 21,3	21,6	21,6	25,0	22,6	18,7	8,081	+ 42,26	101 . 11 . 4,06	G.
	δ Ophiuchi	32 . 5	1 . 59,0	62,0	61,3	63,4	59,8	58,0			32 . 7 . 0,43	G.
June 14	⊙ S.L. M.	5 . 50	2 . 16,0	18,0	20,0	21,8	20,0	12,8	14,272	−1 . 26,86	5 . 50 . 51,06	G.
	⊙ N.L.	5 . 15	4 . 16,0	19,3	20,3	22,3	22,3	14,0			5 . 19 . 18,70	G.
June 15	(b) ⊙ N.L. M........	5 . 15	2 . 20,4	19,0	23,5	24,4	24,4	17,6	12,780	− 55,74	5 . 16 . 25,63	G.
	⊙ S.L.............	5 . 45	2 . 60,0	59,6	63,3	63,4	60,0	54,6			5 . 47 . 59,92	G.
	Saturn N.L.......	45 . 15	1 . 60,8	65,0	62,8	65,5	64,8	59,0			45 . 17 . 2,83	G.
	α Serpentis R. M...	111 . 20	3 . 25,0	25,2	24,3	26,8	23,0	19,8	10,198	− 1,90	111 . 23 . 21,85	G.
	α Serpentis	21 . 50	4 . 41,3	44,1	42,3	43,9	43,3	37,7			21 . 54 . 41,73	G.
	ζ Ursæ Min. R. M.	182 . 40	3 . 23,4	24,8	24,8	26,9	26,8	21,3	11,169	− 22,15	182 . 43 . 2,25	G.
	ζ Ursæ Minoris...	310 . 35	0 . 2,2	3,1	3,9	6,8	4,2	0,0			310 . 35 . 3,37	G.
	(c) Juno	33 . 20	1 . 36,0	38,4	36,0	39,7	37,3	35,8			33 . 21 . 37,08	G.
June 16	(d) ⊙ S.L. M.........	5 . 45	2 . 21,9	20,9	27,0	21,1	23,6	12,0	15,372	−1 . 49,80	5 . 45 . 31,18	G.
	⊙ N.L.	5 . 10	3 . 60,0	58,6	65,6	59,8	62,8	51,3			5 . 13 . 59,38	G.
June 17	(e) Venus N.L.	15 . 10	2 . 61,0	64,0	63,3	67,0	63,4	58,0			15 . 13 . 2,55	G.
June 18	Mercury, center ..	10 . 5	0 . 13,0	12,4	15,2	19,0	13,9	10,2			10 . 5 . 13,93	G.
June 19	(f) ⊙ S.L.	5 . 40	0 . 34,0	38,2	38,0	42,8	38,6	33,6			5 . 40 . 37,48	G.
	⊙ N.L.	5 . 5	4 . 5,2	8,2	9,2	11,0	9,4	1,8		+ 0,28	5 . 9 . 7,43	G.
	β Ursæ Min. R. M.	179 . 10	4 . 26,0	27,3	28,3	30,4	28,0	23,3	8,880	+ 25,60	179 . 14 . 52,47	G.
	β Ursæ Minoris ..	314 . 0	3 . 13,3	13,3	14,7	16,3	11,5	8,9			314 . 3 . 12,75	G.
	Saturn N.L.......	45 . 10	4 . 20,2	22,0	22,6	24,3	20,5	18,0			45 . 14 . 20,93	G.
	ζ Ursæ Min. R. M.	182 . 40	3 . 14,5	15,6	16,8	19,4	14,0	12,8	10,765	− 13,72	182 . 43 . 1,55	G.
	ζ Ursæ Minoris....	310 . 35	0 . 2,1	1,8	2,8	7,2	0,8	0,0			310 . 35 . 2,45	G.
June 21	Jupiter N.L......	20 . 35	2 . 14,7	19,0	17,0	16,8	17,5	16,0			20 . 37 . 16,83	G.
	Saturn N.L.......	45 . 10	3 . 8,1	13,7	12,2	9,8	10,0	12,0			45 . 13 . 10,97	G.
June 22	Jupiter S.L.......	20 . 40	0 . 47,7	52,0	52,3	51,5	50,9	49,0			20 . 40 . 50,57	G.
	η Ursæ Maj. R. M.	154 . 30	4 . 18,0	22,0	21,7	21,0	20,2	21,9	12,178	− 43,23	154 . 33 . 37,57	G.
	η Ursæ Majoris...	338 . 40	4 . 17,0	18,0	22,0	19,5	19,3	17,4			338 . 44 . 18,87	G.
	Saturn S.L.	45 . 10	2 . 47,7	51,0	50,8	51,0	48,2	50,8			45 . 12 . 49,92	G.
	ζ Ursæ Min. R. M.	182 . 40	3 . 22,8	26,8	26,4	27,9	27,6	27,6	11,290	− 24,72	182 . 43 . 1,80	G.
	ζ Ursæ Minoris...	310 . 30	4 . 56,8	59,8	59,9	59,0	59,0	58,3			310 . 34 . 58,80	G.
	η Draconis R. M...	166 . 15	4 . 15,0	20,0	19,6	19,7	18,7	18,0	11,338	− 25,72	166 . 18 . 52,78	G.
	η Draconis.	326 . 55	4 . 7,6	8,0	10,3	8,9	5,9	7,4			326 . 59 . 8,02	G.
	Juno	33 . 20	0 . 36,0	39,4	38,3	39,0	37,3	40,4			33 . 20 . 38,40	G.
	(g) δ Ursæ Min. R. M.	191 . 0	2 . 21,0	24,8	23,9	26,3	23,8	25,0	14,803	−1 . 37,98	191 . 0 . 46,15	G.
	δ Ursæ Minoris...	302 . 15	2 . 15,1	15,2	15,4	16,8	12,8	15,4			302 . 17 . 15,12	G.
	α Lyræ R. M......	143 . 0	4 . 21,0	24,5	24,3	24,1	23,7	23,8	9,952	+ 3,19	143 . 4 . 26,76	G.
	α Lyræ	350 . 10	3 . 32,0	33,1	34,1	33,0	31,3	31,8			350 . 13 . 32,55	G.
	Venus N.L........	13 . 35	1 . 26,2	27,4	29,5	26,8	29,5	26,8			13 . 36 . 27,70	G.
	Mars, center	7 . 40	1 . 28,0	30,7	30,7	30,0	29,7	29,0			7 . 41 . 29,68	G.
	Mercury, center....	8 . 25	3 . 41,8	46,7	46,3	45,0	45,1	42,0			8 . 28 . 44,48	G.
	Capella R. M......	150 . 15	1 . 24,0	26,0	27,4	26,2	25,4	27,1	11,890	− 37,23	150 . 15 . 48,79	G.
	Capella	343 . 0	2 . 7,1	9,9	11,0	9,8	9,9	7,7			343 . 2 . 9,23	G.

Coincidence at middle wire and Runs taken June 22. 23^{h}. (Temp. 63°,5.)
Before the observation of Jupiter June 21, the Circle was taken from the wall and cleaned, and the microscopes were adjusted.

(a) At the 5th wire. Correction for change of N.P.D insensible. Coincidence used for opposite limb = 10^{r},110.

(b) Doubtful observation: so much mist that the limbs were seen with difficulty through the dark glass.

(c) So faint the observer could not be certain of the bisection.

(d) The Sun had been shining on the instrument, the shade having been forgotten.

(e) Cloudy.

(f) S.L. by accident on the fixed wire. N.L. at the 5th wire. Correction for change of N.P.D. = + 0″,02.

(g) The micrometer was read 15^{r},803.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
"	° ′ "	Inch.	°	°	′ "	′ "	r	′ "	° ′ "	
	68 . 40 . 25,78	29,606	55,8	53,7	2 . 25,58	0,88	10,950	8,76	106 . 29 . 50,00	Saturn.
2,12	−26 . 3 . 57,47				28,01				11 . 42 . 42,80	ζ Ursæ Min. R.
	−26 . 3 . 57,77								11 . 42 . 42,50	ζ Ursæ Minoris.
2,25	55 . 27 . 58,21		54,7	52,5	1 . 23,23				93 . 16 . 29,72	δ Ophiuchi R.
	55 . 27 . 58,16								93 . 16 . 29,67	δ Ophiuchi.
	29 . 11 . 48,79	29,660	61,6	62,4	31,51	4,09		15 . 45,80	66 . 43 . 38,69	⊙.
	28 . 40 . 16,43				30,83	4,02			66 . 43 . 37,32	⊙.
	28 . 37 . 23,36	29,666	58,8	60,3	30,91	4,01		15 . 45,70	66 . 40 . 44,24	⊙.
	29 . 8 . 57,65				31,59	4,08			66 . 40 . 47,74	⊙.
	68 . 38 . 0,56	29,628	57,6	55,2	2 . 24,94	0,88	9,350	7,90	106 . 27 . 40,80	Saturn.
1,79	45 . 15 . 40,42				57,60				83 . 3 . 46,30	α Serpentis R.
	45 . 15 . 39,46								83 . 3 . 45,34	α Serpentis.
2,81	−26 . 3 . 59,98				27,95				11 . 42 . 40,35	ζ Ursæ Min. R.
	−26 . 3 . 58,90								11 . 42 . 41,43	ζ Ursæ Minoris.
	56 . 42 . 34,81	29,620	55,8	54,0	1 . 26,99	3,23			94 . 31 . 6,85	Juno.
	29 . 6 . 28,91	29,734	63,6	64,9	31,33	4,07		15 . 45,60	66 . 38 . 18,84	⊙.
	28 . 34 . 57,11				30,65	4,01			66 . 38 . 17,63	⊙.
	38 . 34 . 0,28	29,580	62,5	64,3	44,66	5,47	9,333	8,30	76 . 21 . 56,05	Venus.
	33 . 26 . 11,66	29,690	62,6	62,4	37,26	4,89			71 . 13 . 52,31	Mercury.
	29 . 1 . 35,21	29,702	63,8	63,5	31,26	4,06		15 . 45,40	66 . 33 . 25,29	⊙.
	28 . 30 . 5,16				30,59	4,00			66 . 33 . 25,43	⊙.
2,61	−22 . 35 . 50,20	29,800	59,0	57,6	23,81				15 . 10 . 54,27	β Ursæ Min. R.
	−22 . 35 . 49,52								15 . 10 . 54,95	β Ursæ Minoris.
	68 . 35 . 18,66		57,8	56,1	2 . 25,20	0,87	9,268	8,75	106 . 25 . 0,02	Saturn.
2,00	−26 . 3 . 59,28				28,06				11 . 42 . 40,94	ζ Ursæ Min. R.
	−26 . 3 . 59,82								11 . 42 . 40,40	ζ Ursæ Minoris.
	43 . 58 . 17,78	29,558	64,0	63,7	54,02	1,04	8,500	16,73	81 . 46 . 35,77	Jupiter.
	68 . 34 . 11,92	29,588	57,5	56,1	2 . 24,03	0,87	9,345	7,93	106 . 23 . 51,29	Saturn.
	44 . 1 . 51,52	29,766	62,8	63,0	54,60	1,04	11,749	17,14	81 . 49 . 36,22	Jupiter.
58,22	2 . 5 . 21,48	29,828	60,5	59,8	2,08				39 . 52 . 31,84	η Ursæ Maj. R.
	2 . 5 . 19,82								39 . 52 . 30,18	η Ursæ Majoris.
	68 . 33 . 50,87	29,850	57,5	56,9	2 . 25,03	0,87	10,950	8,81	106 . 23 . 14,50	Saturn.
60,30	−26 . 4 . 2,75				28,07				11 . 42 . 37,46	ζ Ursæ Min. R.
	−26 . 4 . 0,25								11 . 42 . 39,96	ζ Ursæ Minoris.
60,40	− 9 . 39 . 53,73			56,2	9,79				28 . 7 . 4,76	η Draconis R.
	− 9 . 39 . 51,03								28 . 7 . 7,46	η Draconis.
	56 . 41 . 39,35	29,892	55,5	54,8	1 . 27,60	3,24			94 . 30 . 11,99	Juno.
60,64	−34 . 21 . 47,10	29,904	55,4	54,7	39,47				3 . 24 . 41,71	δ Ursæ Min. R.
	−34 . 21 . 43,93								3 . 24 . 44,88	δ Ursæ Minoris.
59,66	13 . 34 . 32,29				13,94				51 . 21 . 54,51	α Lyræ R.
	13 . 34 . 33,50								51 . 21 . 55,72	α Lyræ.
	36 . 57 . 28,65	30,070	58,8	59,5	43,24	5,08	9,312	8,46	74 . 45 . 23,55	Venus.
	31 . 2 . 30,63	30,088	61,5	62,2	34,44	1,90			68 . 50 . 11,45	Mars.
	31 . 49 . 45,43		62,3	63,5	35,42	4,30			69 . 37 . 24,83	Mercury.
59,01	6 . 23 . 10,26				6,39				44 . 10 . 24,93	Capella R.
	6 . 23 . 10,18								44 . 10 . 24,85	Capella.

Coincidence of Micrometer Wire with fixed Wire = 10ʳ,107, at the middle wire. From June 21 = 10ʳ,105.
One Micrometer Revolution = 20″,855.
Correction for Runs = −2″,3. From June 21 = 0″,0.
Adopted Zenith Point = 336° . 39′ . 2″,27. From June 21 = 336° . 38′ . 59″,05.
Assumed Co-latitude = 37° . 47′ . 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
June 23	☉ N.L. M.	5 . 5	4 . 20,8	23,5	25,2	20,8	23,4	20,8	12,985	− 1 . 0,06	5 . 8 . 22,36	G.
	☉ S.L.	5 . 35	4 . 50,0	54,1	55,2	50,5	52,8	49,7			5 . 39 . 52,05	G.
	Jupiter N.L......	20 . 40	3 . 19,8	23,2	21,8	21,0	21,0	21,0			20 . 43 . 21,30	G.
	Saturn N.L.......	45 . 10	1 . 58,0	61,9	59,0	59,2	58,3	59,8			45 . 11 . 59,37	G.
	α Serpentis R. M..	111 . 20	4 . 18,8	21,8	18,8	19,0	17,3	19,0	12,889	− 58,06	111 . 23 . 21,06	G.
	α Serpentis.......	21 . 50	4 . 36,5	40,2	36,4	35,7	37,4	37,3			21 . 54 . 37,25	G.
	ζ Ursæ Min. R. M.	182 . 40	3 . 24,3	27,4	26,0	25,3	25,2	27,8	11,276	− 24,43	182 . 43 . 1,57	G.
	ζ Ursæ Minoris...	310 . 30	4 . 57,8	61,0	59,5	57,8	57,5	58,3			310 . 34 . 58,65	G.
	δ Ophiuchi R. M..	101 . 5	4 . 22,5	25,5	23,3	23,9	23,0	24,9	5,378	+1 . 38,59	101 . 11 . 2,44	G.
	δ Ophiuchi........	32 . 5	1 . 54,5	58,2	56,0	55,8	55,0	56,5			32 . 6 . 56,00	G.
	η Draconis R. M...	166 . 15	4 . 13,8	18,2	17,0	15,9	14,2	15,8	11,250	− 23,88	166 . 18 . 51,94	G.
	η Draconis........	326 . 55	4 . 6,4	7,8	8,6	6,4	5,5	7,1			326 . 59 . 6,97	G.
June 25	(*a*) ☉ N.L. M.	5 . 10	2 . 57,8	61,1	63,0	59,3	62,3	57,6	17,231	−2 . 28,63	5 . 10 . 31,39	C.
June 27	☉ N.L. M........	5 . 15	2 . 2,4	4,8	6,9	4,0	5,7	2,7	18,152	−2 . 47,82	5 . 14 . 16,48	C.
	☉ S.L.	5 . 45	0 . 44,3	45,5	48,3	45,9	46,6	45,0			5 . 45 . 45,90	C.
June 29	(*b*) Venus N.L.	11 . 30	2 . 18,2	22,4	25,3	22,4	22,3	22,0			11 . 32 . 21,97	C.
	(*c*) Mercury, center....	5 . 55	3 . 58,6	64,8	66,6	62,3	64,1	61,2		+ 0,92	5 . 59 . 3,64	C.
June 30	(*d*) ☉ S.L. M.........	5 . 50	4 . 13,6	20,3	21,8	16,8	18,4	16,3	9,522	+ 12,16	5 . 54 . 29,79	C.
	(*e*) Polaris SP. R. M..	195 . 55	4 . 58,6	62,4	64,1	64,4	62,0	63,4	13,885 13 . 9 . 30	−1 . 18,78 + 3,60	195 . 58 . 47,30	C.
	Polaris SP........	297 . 15	4 . 15,0	18,6	19,0	17,5	15,3	19,3	13 . 11 . 35	− 5,67	297 . 19 . 11,55	C.
July 1	(*f*) Mercury, center...	5 . 25	3 . 5,3	13,6	13,8	11,5	13,6	10,7		+ 0,58	5 . 28 . 11,83	C.
July 2	☉ S.L. M.........	6 . 5	0 . 0,8	8,7	9,1	8,6	8,0	5,6	17,956	−2 . 43,73	6 . 2 . 23,07	C.
	☉ N.L............	5 . 30	0 . 47,0	55,8	56,1	54,5	55,7	51,5			5 . 30 . 53,38	C.
	(*g*) Regulus R. M.....	117 . 10	2 . 51,3	61,6	58,4	58,6	57,5	55,2	12,000	− 39,40 − 0,21	117 . 12 . 17,34	C.
	Regulus..........	16 . 5	0 . 34,2	43,3	39,6	41,8	40,6	39,7		+ 0,69	16 . 5 . 40,52	C.
	Jupiter N.L.......	21 . 10	2 . 46,9	58,4	54,5	55,4	55,4	51,3			21 . 12 . 53,50	C.
July 3	(*h*) ☽ N.L............	51 . 45	4 . 47,8	61,3	54,9	58,2	56,6	55,8		− 6,10	51 . 49 . 49,68	C.
	☽ N.L. M.	51 . 45	4 . 47,8	61,3	54,9	58,2	56,6	55,8	9,956	+ 3,15 − 9,15	51 . 49 . 49,78	C.
July 4	(*i*) ☉ S.L. M.........	6 . 10	4 . 57,3	68,9	64,2	65,3	64,8	62,6	19,315	−3 . 12,25	6 . 11 . 51,60	C.
	☉ N.L............	5 . 40	0 . 16,4	26,3	24,1	24,7	24,8	22,5		+ 0,23	5 . 40 . 23,30	C.
	(*k*) Arcturus R. M....	124 . 25	4 . 59,2	68,2	64,6	67,6	65,5	64,0	15,024	−1 . 42,76	124 . 28 . 22,09	C.
	Arcturus.........	8 . 45	4 . 28,7	39,2	36,0	35,6	36,9	32,7			8 . 49 . 34,07	C.
	(*l*) Saturn N.L.......	45 . 5	2 . 13,5	26,9	19,7	21,6	21,5	20,7			45 . 7 . 20,25	C.
	(*m*) ☽ N.L............	55 . 20	1 . 37,8	49,5	43,5	46,5	46,5	44,4		+ 4,40	55 . 21 . 48,80	C.
	☽ N.L. M..........	55 . 20	1 . 37,8	49,5	43,5	46,5	46,5	44,4	10,002	+ 1,86 + 2,20	55 . 21 . 48,46	C.
	☽ N.L. M.	55 . 20	1 . 37,8	49,5	43,5	46,5	46,5	44,4	9,953	+ 3,00	55 . 21 . 47,40	C.
	☽ N.L. M.	55 . 20	1 . 37,8	49,5	43,5	46,5	46,5	44,4	9,884	+ 4,44 − 2,20	55 . 21 . 46,64	C.
	☽ N.L. M.	55 . 20	1 . 37,8	49,5	43,5	46,5	46,5	44,4	9,832	+ 5,67 − 4,40	55 . 21 . 45,67	C.
	25 Scorpii........	54 . 0	1 . 21,5	33,7	26,3	30,3	30,4	28,9			54 . 1 . 28,27	C.

Runs taken June 27, 6ʰ. (Temp. about 63°.)
June 30. 7ʰ, Molyneux fast on Hardy, 0ᵐ. 12ˢ.
Before the observation of Polaris June 30 the object-glass end of the Telescope struck with some violence against the observing chair. After the observation some weights were taken from the counterpoise. No decided effect on the Zenith Point.
Coincidences at the five wires and Runs taken July 7, 4ʰ. (Temp. 65°.)

(*a*) Seen with difficulty without dark glass: the other limb invisible. (*b*) Extremely unsteady and ill-defined. (*c*) Very cloudy. At 2½ intervals past middle wire. Correction for change of N.P.D. = + 0″,50. (*d*) Without dark glass: very cloudy and doubtful. (*e*) No correction for runs. Adopted coincidence = 10ʳ,108. (*f*) Cloudy. At 5th wire: correction for change of N.P.D. = + 0″,32. (*g*) At 2½ and 4½ intervals past middle wire. The mercury was waving and the observation altogether doubtful. (*h*) At 5th wire and comb. Uneven edge and too clouded for the other wires. No correction for runs. Adopted coincidence at comb 10ʳ,107. (*i*) Very cloudy and doubtful, particularly N.L. No correction for runs for S.L. N.L. at 2½ intervals; correction for change of N.P.D. = − 0″,16. (*k*) No correction for runs. Pretty good observation. (*l*) Not satisfactory. (*m*) At the five wires. Very ragged limb.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	28 . 29 . 23,31	30,092	64,4	65,5	30,86	3,99		15 . 45,20	66 . 32 . 43,66	⊙.
	29 . 0 . 53,00				31,53	4,06			66 . 32 . 43,55	⊙.
	44 . 4 . 22,25	30,050	65,6	67,2	54,74	1,04	8,606	15,64	81 . 52 . 39,87	Jupiter.
	68 . 33 . 0,32	30,046	61,5	60,1	2 . 24,93	0,87	9,297	8,43	106 . 22 . 41,09	Saturn.
59,16	45 . 15 . 37,99				57,84				83 . 3 . 44,11	α Serpentis R.
	45 . 15 . 38,20								83 . 3 . 44,32	α Serpentis.
60,11	- 26 . 4 . 2,52				28,07				11 . 42 . 37,69	ζ Ursæ Min. R.
	- 26 . 4 . 0,40								11 . 42 . 39,81	ζ Ursæ Minoris.
59,22	55 . 27 . 56,61			59,3	1 . 23,31				93 . 16 . 28,20	δ Ophiuchi R.
	55 . 27 . 56,95								93 . 16 . 28,54	δ Ophiuchi.
59,46	- 9 . 39 . 52,89				9,79				28 . 7 . 5,60	η Draconis R.
	- 9 . 39 . 52,08								28 . 7 . 6,41	η Draconis.
	28 . 31 . 32,34	30,024	64,5	66,4	30,78	4,00		15 . 45,20	66 . 34 . 52,60	⊙.
	28 . 35 . 17,43	29,922	63,0	63,8	30,91	4,01		15 . 45,10	66 . 38 . 37,71	⊙.
	29 . 6 . 46,85				31,59	4,07			66 . 38 . 37,55	⊙.
	34 . 53 . 22,92	29,878	59,0	59,3	39,84	4,59	9,223	9,35	72 . 41 . 15,80	Venus.
	29 . 20 . 4,59	29,870	61,3	62,0	31,94	3,51			67 . 7 . 41,30	Mercury.
	29 . 15 . 30,74	29,868	61,5	62,0	31,83	4,09		15 . 45,10	66 . 47 . 21,66	⊙.
59,43	- 39 . 19 . 48,25	29,810	60,2	59,4	46,69				- 1 . 33 . 26,66	Polaris SP. R.
	- 39 . 19 . 47,50								- 1 . 33 . 25,91	Polaris SP.
	28 . 49 . 12,78	29,980	60,4	61,7	31,41	3,36			66 . 36 . 49,11	Mercury.
	29 . 23 . 24,02	29,980	61,4	63,3	32,05	4,11		15 . 45,10	66 . 55 . 15,14	⊙.
	28 . 51 . 54,33				31,36	4,04			66 . 55 . 15,03	⊙.
58,93	39 . 26 . 41,71	29,976	62,3	65,7	46,57				77 . 14 . 36,56	Regulus R.
	39 . 26 . 41,47								77 . 14 . 36,32	Regulus.
	44 . 33 . 54,45	29,962	63,0	66,1	55,66	1,03	8,645	15,23	82 . 22 . 12,59	Jupiter.
	75 . 10 . 50,63	30,016	62,3	61,7	3 . 32,39	54 . 13,96		15 . 19,71	112 . 22 . 37,05	☽.
	75 . 10 . 50,73								112 . 22 . 37,15	☽.
	29 . 32 . 52,55	30,054	64,0	66,6	32,12	4,13		15 . 45,10	67 . 4 . 43,72	⊙.
	29 . 1 . 24,25				31,44	4,06			67 . 4 . 45,01	⊙.
58,08	32 . 10 . 36,96	30,052	64,4	64,6	35,78				69 . 58 . 21,02	Arcturus R.
	32 . 10 . 35,02								69 . 58 . 19,08	Arcturus.
	68 . 28 . 21,20	30,058	63,4	62,6	2 . 23,69	0,86	9,230	9,04	106 . 18 . 1,35	Saturn.
	78 . 42 . 49,75	30,060	62,6	61,4					115 . 54 . 21,48	☽.
	78 . 42 . 49,41								115 . 54 . 21,14	☽.
	78 . 42 . 48,35				4 . 38,71	55 . 47,85		15 . 32,59	115 . 54 . 20,08	☽.
	78 . 42 . 47,59								115 . 54 . 19,32	☽.
	78 . 42 . 46,62								115 . 54 . 18,35	☽.
	77 . 22 . 29,22				4 . 9,74				115 . 13 . 47,24	25 Scorpii.

Coincidence of Micrometer Wire with fixed Wire = 10ʳ,105 at middle Wire. From July 3 = 10ʳ,094, 10ʳ,091, 10ʳ,097, 10ʳ,097, 10ʳ,104 at the five wires.

One Micrometer Revolution = 20″,855.

Correction for Runs = 0″,0. From June 25 = − 1″,6. From July 3 = − 5″,2.

Adopted Zenith Point = 336° . 38′ . 59″,05.

Assumed Co-latitude = 37° . 47′ . 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
July 4	(*a*) δ Ursæ Min. R. M.	191 . 0	2 . 23,0	32,6	29,2	32,2	31,3	30,3	14,513 18 . 16 . 0	-1 . 32,10 - 9,04	191 . 0 . 48,19	C.
	δ Ursæ Minoris...	302 . 15	2 . 2,4	10,0	7,6	8,5	5,2	7,3	18 . 19 . 30	+ 3,27	302 . 17 . 9,74	C.
	α Lyræ R. M.....	143 . 0	4 . 14,2	26,0	21,4	21,7	22,9	20,7	9,674	+ 8,82	143 . 4 . 29,22	C.
	α Lyræ...........	350 . 10	3 . 22,8	30,6	29,4	28,0	28,7	26,8			350 . 13 . 27,12	C.
	Venus N.L.......	10 . 10	3 . 32,3	41,7	40,2	38,3	40,3	35,8			10 . 13 . 37,48	C.
	Mercury, center ...	4 . 55	2 . 39,6	49,9	46,5	46,4	48,4	42,8			4 . 57 . 45,13	C.
July 5	(*b*) ⊙ N.L. M........	5 . 50	0 . 4,0	14,0	12,4	13,0	13,3	9,4	23,086	-4 . 30,90	5 . 45 . 40,08	C.
	⊙ S.L.	6 . 15	2 . 4,8	15,4	13,3	12,8	14,4	9,5			6 . 17 . 11,32	C.
	(*c*) Arcturus R. M....	124 . 25	4 . 53,2	62,7	57,4	62,2	58,6	58,7	14,786	-1 . 37,79	124 . 28 . 21,01	C.
	Arcturus.........	8 . 45	4 . 28,8	41,9	36,8	37,4	40,0	33,8			8 . 49 . 35,65	C.
	(*d*) ☽ S.L. M	58 . 0	3 . 33,7	45,3	38,9	41,7	42,7	40,2	22,769	-4 . 24,34 + 1,92	57 . 59 . 17,36	C.
	☽ S.L. M.........	58 . 0	3 . 33,7	45,3	38,9	41,7	42,7	40,2	22,613	-4 . 21,16 + 0,96	57 . 59 . 19,58	C.
	☽ N.L.............	57 . 25	2 . 54,6	65,9	60,6	61,8	63,7	60,1		- 2,88	57 . 27 . 57,72	C.
July 6	(*e*) ☽ S.L. M.........	58 . 15	4 . 2,2	16,3	8,2	9,4	9,3	8,9	11,464	- 28,58 - 1,12	58 . 18 . 38,63	C.
	Venus N.L.......	9 . 40	4 . 44,1	55,4	53,3	50,6	53,1	47,3			9 . 44 . 49,80	C.
	Mars, center......	6 . 5	1 . 6,7	16,8	14,8	13,5	13,6	9,0			6 . 6 . 12,20	C.
	Mercury, center....	4 . 45	4 . 47,7	56,6	55,3	55,6	55,6	51,7			4 . 49 . 52,90	C.
July 7	⊙ N.L. M........	5 . 55	2 . 35,0	46,3	42,5	41,6	42,7	38,3	10,627	- 11,06	5 . 57 . 29,54	C.
	⊙ S.L.............	6 . 25	3 . 57,5	68,2	65,2	63,7	65,3	60,3			6 . 29 . 2,67	C.
	(*f*) Saturn S.L	45 . 5	1 . 44,3	55,3	50,4	52,7	51,6	50,2			45 . 6 . 50,43	C.
	α Lyræ R. M.....	143 . 0	4 . 3,3	14,4	9,9	10,7	9,6	7,8	8,947	+ 23,99	143 . 4 . 32,56	C.
	(*g*) *α* Lyræ	350 . 10	3 . 23,0	29,4	28,7	28,7	27,8	25,6		+ 0,48	350 . 13 . 27,08	C.
July 8	(*h*) Mercury, center M.	4 . 50	2 . 30,3	39,2	36,6	36,0	37,6	33,2	8,946	+ 24,01	4 . 52 . 59,04	C.
July 9	⊙ N.L. M........	6 . 10	0 . 28,1	36,4	34,6	35,3	36,0	32,6	9,032	+ 22,21	6 . 10 . 55,94	C.
	⊙ S.L............	6 . 40	2 . 20,3	29,2	27,0	27,0	29,0	24,9			6 . 42 . 25,80	C.
	Jupiter N.L......	21 . 35	3 . 7,9	20,2	13,6	16,3	15,4	12,2			21 . 38 . 13,72	C.
	(*i*) Polaris SP. R. M..	196 . 0	0 . 2,1	12,1	7,6	12,5	9,6	8,8	14,011	-1 . 21,63	195 . 58 . 47,12	C.
	Polaris SP.........	297 . 15	4 . 7,7	16,9	11,5	13,7	11,4	11,6			297 . 19 . 11,40	C.
	Arcturus R. M....	124 . 25	4 . 53,6	65,5	60,3	60,7	60,7	56,7	14,779	-1 . 37,64	124 . 28 . 21,08	C.
	Arcturus.........	8 . 45	4 . 29,9	40,0	35,5	36,6	37,4	32,8			8 . 49 . 34,58	C.
	Saturn N.L.......	45 . 5	1 . 2,8	14,2	8,6	11,6	11,0	9,5			45 . 6 . 9,42	C.
	(*k*) *α* Lyræ R. M......	143 . 0	3 . 58,6	71,0	65,0	66,6	66,0	64,4	8,783	+ 27,56 - 0,48	143 . 4 . 31,63	C.
	α Lyræ	350 . 10	3 . 18,2	26,7	24,7	24,5	24,3	21,7		+ 1,92	350 . 13 . 24,69	C.
	(*l*) Venus N.L.	9 . 0	4 . 40,0	51,0	47,1	47,3	47,5	43,0		+ 0,34	9 . 4 . 45,51	C.
	Mars, center......	5 . 50	1 . 0,6	11,0	8,4	8,5	8,4	5,1			5 . 51 . 6,82	C.
	Mercury, center....	4 . 55	3 . 37,0	48,4	43,7	43,8	45,3	40,4			4 . 58 . 42,47	C.
July 10	⊙ S.L. M	6 . 50	1 . 46,4	54,4	53,8	54,5	54,1	50,5	16,153	-2 . 6,30	6 . 49 . 45,65	C.
	⊙ N.L.	6 . 15	3 . 9,5	19,3	15,9	16,3	17,7	13,2			6 . 18 . 14,75	C.
July 11	*α* Lyræ R. M......	143 . 0	3 . 50,0	62,8	56,4	58,6	56,6	55,1	8,381	+ 35,80	143 . 4 . 31,98	C.
	α Lyræ...........	350 . 10	3 . 21,0	29,2	27,2	27,6	28,3	23,1			350 . 13 . 25,72	C.
	(*m*) Venus N.L.......	8 . 40	0 . 12,2	21,6	18,1	21,2	19,4	16,7			8 . 40 . 18,17	C.
July 12	(*n*) ⊙ S.L. M.........	7 . 5	0 . 54,8	64,8	63,2	63,7	63,2	59,5	11,693	- 33,30	7 . 5 . 28,13	C.

Runs taken July 16, 4^{h}. (Temp. 68°.) July 4. 12^{h}, Molyneux fast on Hardy, 0^{m}. 13^{s}.

(*a*) Doubtful; mercury disturbed by wind. (*b*) Setting not good. Limbs ill-defined. (*c*) No correction for runs. Arcturus was seen through clouds as a very minute star. (*d*) At 1st and 2nd wires and at comb; the last very cloudy: S.L. was uneven and N.L. not full: correction applied to latter for defect of illumination = −1″,39. The observation was far from satisfactory. (*e*) At 1st wire: faint and doubtful. Too cloudy for more. (*f*) Faint. (*g*) At 5th wire. (*h*) Doubtful observation, taken unintentionally on micrometer wire as the planet was disappearing in clouds. (*i*) Attached Thermometer was read 63°,4 and is altered 5° conjecturally. (*k*) At 2 and 4 intervals past middle wire: the reflexion observation not satisfactory, the mercury being disturbed by wind. (*l*) Midway between 4th and 5th wires, the tangent-screw failing. Correction for change of N.P.D. =+0″,23. (*m*) Unsteady. (*n*) Cloudy and very doubtful: too cloudy for the other limb.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
"	° ′ "	Inch.	°	°	′ "	′ "	r	′ "	° ′ "	
58,97	- 34 . 21 . 49,14	30,072	59,7	58,5	39,38				3 . 24 . 39,76	δ Ursæ Min. R.
	- 34 . 21 . 49,31								3 . 24 . 39,59	δ Ursæ Minoris.
58,17	13 . 34 . 29,83				13,91				51 . 21 . 52,02	α Lyræ R.
	13 . 34 . 28,07								51 . 21 . 50,26	α Lyræ.
	33 . 34 . 38,43	30,106	61,5	63,2	37,93	4,29	9,304	8,36	71 . 22 . 28,71	Venus.
	28 . 18 . 46,08	30,100	63,3	65,9	30,61	3,18			66 . 6 . 21,79	Mercury.
	29 . 6 . 41,03	30,098	64,0	68,8	31,47	4,07		15 . 45,10	67 . 10 . 1,81	☉.
	29 . 38 . 12,27				32,15	4,14			67 . 10 . 3,46	☉.
58,33	32 . 10 . 38,04	30,066	65,6	67,1	35,63				69 . 58 . 21,95	Arcturus R.
	32 . 10 . 36,60								69 . 58 . 20,51	Arcturus.
	81 . 20 . 18,31		62,2	60,6	5 . 59,04	57 . 2,88			118 . 0 . 37,12	☽.
	81 . 20 . 20,53							15 . 45,63	118 . 0 . 39,34	☽.
	80 . 48 . 58,67				5 . 39,95	56 . 57,64			118 . 0 . 33,50	☽.
	81 . 39 . 39,58	29,896	59,6	58,0	6 . 11,81	57 . 50,15		15 . 57,87	118 . 19 . 11,65	☽.
	33 . 5 . 50,75	29,888	62,0	62,2	37,04	4,18	9,290	8,50	70 . 53 . 40,39	Venus.
	29 . 27 . 13,15				32,10	1,83			67 . 14 . 51,70	Mars.
	28 . 10 . 53,85	29,876	65,0	65,7	30,23	3,11			65 . 58 . 29,25	Mercury.
	29 . 18 . 30,49	29,870	65,5	65,9	31,65	4,10		15 . 45,20	67 . 21 . 51,52	☉.
	29 . 50 . 3,62				32,34	4,17			67 . 21 . 54,87	☉.
	68 . 27 . 51,38	29,884	61,4	60,9	2 . 23,31	0,85	10,947	8,86	106 . 17 . 13,26	Saturn.
59,82	13 . 34 . 26,49	29,890	58,2	58,1	13,84				51 . 21 . 48,61	α Lyræ R.
	13 . 34 . 28,03								51 . 21 . 50,15	α Lyræ.
	28 . 13 . 59,99	30,068	65,4	67,4	30,39	3,07			66 . 1 . 35,59	Mercury.
	29 . 31 . 56,89	30,068	65,4	67,4	32,07	4,13		15 . 45,20	67 . 35 . 18,31	☉.
	30 . 3 . 26,75				32,76	4,19			67 . 35 . 18,40	☉.
	44 . 59 . 14,67	30,060	69,3	71,0	56,11	1,02	8,741	14,15	82 . 47 . 32,19	Jupiter.
59,26	- 39 . 19 . 48,07	30,058	68,4	69,2	46,17				- 1 . 33 . 25,96	Polaris SP. R.
	- 39 . 19 . 47,65								- 1 . 33 . 25,54	Polaris SP.
57,83	32 . 10 . 37,97	30,066		68,3	35,54				69 . 58 . 21,79	Arcturus R.
	32 . 10 . 35,53								69 . 58 . 19,35	Arcturus.
	68 . 27 . 10,37	30,072	66,2	65,0	2 . 22,93	0,85	9,238	8,96	106 . 16 . 49,69	Saturn.
58,16	13 . 34 . 27,42	30,084	61,8	59,9	13,88				51 . 21 . 49,58	α Lyræ R.
	13 . 34 . 25,64								51 . 21 . 47,80	α Lyræ.
	32 . 25 . 46,46	30,080	63,8	64,6	36,17	4,03	9,334	8,06	70 . 13 . 34,94	Venus.
	29 . 12 . 7,77		65,2	65,8	31,74	1,82			66 . 59 . 45,97	Mars.
	28 . 19 . 43,42	30,082	68,4	69,1	30,42	3,06			66 . 7 . 19,06	Mercury.
	30 . 10 . 46,60	30,082	68,4	69,1	32,82	4,21		15 . 45,30	67 . 42 . 38,19	☉.
	29 . 39 . 15,70				32,13	4,14			67 . 42 . 37,27	☉.
58,85	13 . 34 . 27,07	29,978	64,7	63,0	13,75				51 . 21 . 49,10	α Lyræ R.
	13 . 34 . 26,67								51 . 21 . 48,70	α Lyræ.
	32 . 1 . 19,12	29,984	65,7	66,4	35,36	3,93	9,342	7,92	69 . 49 . 6,75	Venus.
	30 . 26 . 29,08	29,982	68,0	68,3	33,10	4,24		15 . 45,30	67 . 58 . 20,92	☉.

Coincidence of Micrometer Wire with fixed Wire = 10r,094, 10r,091, 10r,097, 10r,197, 10r,104 at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = - 5″,2. From July 11 = - 3″,1.
Adopted Zenith Point = 336° . 38′ . 59″,05.
Assumed Co-latitude = 37° . 47′ . 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
July 12	α Lyræ R. M......	143 . 0	4 . 39,6	52,4	45,2	47,5	47,2	45,0	10,773	− 14,10	143 . 4 . 31,55	C.
	α Lyræ...........	350 . 10	3 . 20,0	29,1	25,7	26,6	26,6	23,3			350 . 13 . 24,87	C.
July 13	(*a*) ☉ N.L. M........	6 . 40	4 . 46,5	55,3	54,3	54,0	55,3	49,4	17,174	− 2 . 27,66	6 . 42 . 24,69	C.
	☉ S.L.............	7 . 10	3 . 49,5	60,0	57,0	57,3	57,2	52,3			7 . 13 . 55,15	C.
	(*b*) δ Ursæ Min. R. M..	191 . 0	1 . 32,5	43,3	36,0	41,8	40,0	37,7	11,775 18 . 15 . 20	− 35,06 − 10,16	191 . 0 . 53,16	C.
	(*c*) δ Ursæ Minoris...	302 . 15	2 . 1,5	10,0	4,7	7,8	4,4	4,6	18 . 23 . 25	+ 0,19	302 . 17 . 5,47	C.
	(*d*) α Lyræ R. M......	143 . 0	4 . 34,7	46,9	38,9	42,6	42,4	40,1	10,484	− 8,14 − 1,08	143 . 4 . 31,25	C.
	α Lyræ...........	350 . 10	3 . 18,7	28,8	24,2	25,4	24,9	21,7		+ 2,70	350 . 13 . 26,28	C.
	(*e*) α Aquilæ R. M....	112 . 50	3 . 31,4	43,1	34,5	38,4	36,6	35,4	9,657	+ 9,12	112 . 53 . 45,32	C.
	(*f*) α Aquilæ..........	20 . 20	4 . 8,2	20,3	13,3	15,3	15,1	12,2		+ 0,09	20 . 24 . 13,72	C
July 15	(*g*) ☽ N.L.............	8 . 20	2 . 26,3	35,0	31,9	32,7	32,6	28,5		+ 1,76	8 . 22 . 32,66	C.
	☽ N.L. M..........	8 . 20	2 . 26,3	35,0	31,9	32,7	32,6	28,5	10,320	− 4,51 + 7,02	8 . 22 . 33,41	C.
	☽ N.L. M..........	8 . 20	2 . 26,3	35,0	31,9	32,7	32,6	28,5	10,443	− 7,02 + 10,53	8 . 22 . 34,41	C.
	☽ N.L. M..........	8 . 20	2 . 26,3	35,0	31,9	32,7	32,6	28,5	10,723	− 12,74 + 15,79	8 . 22 . 33,95	C.
	(*h*) Venus N.L.......	7 . 55	1 . 57,6	67,0	64,2	64,7	63,7	59,8		+ 1,61	7 . 57 . 4,24	C.
	(*i*) Mars, center......	5 . 25	1 . 32,5	41,9	38,6	39,5	40,0	36,3		+ 0,07	5 . 26 . 38,04	C.
July 16	(*k*) ☉ N.L. M.........	7 . 10	1 . 0,4	11,4	7,7	9,9	8,6	4,5	13,456	− 1 . 10,12	7 . 9 . 56,85	C.
	☉ S.L.............	7 . 40	1 . 21,0	32,4	26,7	29,3	29,4	25,5			7 . 41 . 27,23	C.
	(*l*) Polaris SP. R. M...	195 . 55	4 . 30,8	41,4	36,3	37,7	37,9	33,4	12,399 13 . 3 . 15	− 48,07 + 0,20	195 . 58 . 47,91	C.
	Polaris SP........	297 . 15	4 . 14,9	25,6	18,5	22,2	19,2	18,4	13 . 13 . 0	− 7,31	297 . 19 . 12,04	C.
	(*m*) Arcturus R. M....	124 . 25	4 . 54,1	66,8	60,7	62,6	61,0	58,2	14,763	− 1 . 37,37	124 . 28 . 22,68	C.
	Arcturus.,........	8 . 45	4 . 29,3	40,3	35,3	36,9	36,7	33,0			8 . 49 . 34,78	C.
	(*n*) Saturn S.L........	45 . 5	0 . 37,3	48,9	41,8	46,2	44,5	43,4			45 . 5 . 43,62	C.
	(*o*) A Ophiuchi (preceding) M.....	55 . 5	0 . 43,4	56,3	48,0	52,9	50,9	49,3	1,099	+ 3 . 7,80 − 0,30	55 . 8 . 57,55	C.
	(*o*) 30 Scorpii.........	55 . 5	0 . 43,4	56,3	48,0	52,9	50,9	49,3		− 0,30	55 . 5 . 49,75	C.
	31 Camelopar. SP. R. M...........	224 . 35	0 . 31,5	42,2	33,1	40,1	37,6	38,3	16,931	− 2 . 22,59	224 . 33 . 14,48	C.
	(*p*) 31 Camelopardi SP.	268 . 40	4 . 38,5	50,4	42,4	45,5	43,3	43,8		− 1,03	268 . 44 . 42,47	C.
	α Lyræ R. M......	143 . 5	0 . 13,2	25,8	19,4	22,3	22,3	18,5	12,382	− 47,72	143 . 4 . 32,50	C.
	α Lyræ...........	350 . 10	3 . 19,1	28,6	25,3	25,2	26,5	22,5			350 . 13 . 24,18	C.
July 17	☉ N.L. M.........	7 . 20	1 . 15,2	23,8	22,4	22,6	21,7	18,5	14,380	− 1 . 29,39	7 . 19 . 51,18	C.
	☉ S.L.	7 . 50	1 . 16,8	25,4	23,9	24,6	24,0	20,5			7 . 51 . 22,38	C.
	(*q*) Polaris SP. R. M...	195 . 55	3 . 25,5	35,7	30,2	32,8	32,6	30,5	9,572 13 . 10 . 24	+ 10,89 + 4,45	195 . 58 . 46,19	C.
	Polaris SP.........	297 . 15	4 . 14,9	25,3	19,6	22,1	19,4	17,9	13 . 13 . 0	− 7,31	297 . 19 . 12,11	C.
July 18	(*r*) Saturn N.L.......	45 . 5	0 . 22,3	33,6	27,7	31,4	29,6	28,4			45 . 5 . 28,78	C.
	(*s*) ζ Ursæ Min. R. M.	182 . 40	3 . 45,7	55,6	51,2	53,8	50,7	48,8	12,352	− 47,02 − 0,72	182 . 43 . 2,83	C.
	ζ Ursæ Minoris...	310 . 30	4 . 47,1	55,5	50,8	53,8	50,5	49,6		+ 2,89	310 . 34 . 53,61	C.
	δ Ophiuchi R. M...	101 . 10	1 . 18,6	25,5	21,7	26,1	23,0	22,6	11,034	− 19,60	101 . 11 . 3,17	C.
	(*t*) δ Ophiuchi........	32 . 5	1 . 48,1	58,2	53,8	56,9	54,3	53,9		− 0,14	32 . 6 . 53,86	C.
	(*u*) α Lyræ R. M......	143 . 5	0 . 22,4	33,6	28,3	31,9	29,4	29,4	12,657	− 53,45	143 . 4 . 35,67	C.
	α Lyræ...........	350 . 10	3 . 19,8	27,0	25,4	26,2	23,8	22,0		+ 0,48	350 . 13 . 24,16	C.

Coincidence at middle wire taken July 16, 4^{h}.
Molyneux fast on Hardy, 0^{m}. 15^{s} July 13, 11^{h}, 0^{m}. 15^{s} July 16, 6^{h}, and 0^{m}. 14^{s},7 July 17, 6^{h}.

(*a*) Ragged limbs and extremely unsteady. No correction for run of microscope B in the observation of N.L. (*b*) Circle divisions bisected and microscopes read, after bisecting the star. (*c*) In haste, to have time for the next observation. (*d*) At the comb and just on leaving the field. The mercury had scarcely settled after placing the trough, and the bisection was consequently a guess. (*e*) Too much wind. (*f*) At 5th wire. (*g*) At ½ an interval, 2, 3 and 4½ intervals respectively *past* the middle wire. Hurried. (*h*) At 4½ intervals: cloudy till then. Correction for change of N.P.D. = + 0″,45. (*i*) At 4th wire. Correction for change of N.P.D. insensible. (*k*) Very tremulous. (*l*) Very unsteady: direct observation delayed by a cloud. (*m*) Satisfactory. (*n*) Very faint. (*o*) Each star was bisected by the micrometer wire at the middle wire, and the difference of micrometer readings was 9^{r},005: 30 Scorpii was then bisected by the fixed wire at the 5th wire, and the adopted micrometer reading for the other star = 10^{r},104 − 9^{r},005. (*p*) At 5th wire. (*q*) Microscope F was written down 20,5, and is altered conjecturally. (*r*) Very faint and doubtful. (*s*) At 4th and 5th wires. (*t*) Just on leaving the field: very doubtful. (*u*) At 3rd and 5th wires. Cloudy.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
58,21	13 . 34 . 27,50	29,964	65,6	64,0	13,71				51 . 21 . 49,49	α Lyræ R.
	13 . 34 . 25,82								51 . 21 . 47,81	α Lyræ.
	30 . 3 . 25,64	29,894	68,0	70,0	32,40	4,20		15 . 45,40	68 . 6 . 47,52	⊙.
	30 . 34 . 56,10				33,09	4,26			68 . 6 . 47,81	⊙.
59,32	− 34 . 21 . 54,11	29,656	67,8	67,6	38,15				3 . 24 . 36,02	δ Ursæ Min. R.
	− 34 . 21 . 53,58								3 . 24 . 36,55	δ Ursæ Minoris.
58,77	13 . 34 . 27,80	29,650	67,7	66,8	13,48				51 . 21 . 49,56	α Lyræ R.
	13 . 34 . 27,23								51 . 21 . 48,99	α Lyræ.
59,52	43 . 45 . 13,73	29,650	67,7	66,8	53,45				81 . 33 . 15,46	α Aquilæ R.
	43 . 45 . 14,67								81 . 33 . 16,40	α Aquilæ.
	31 . 43 . 33,61	29,914	61,6	60,5					69 . 16 . 47,39	☽.
	31 . 43 . 34,36								69 . 16 . 48,14	☽.
	31 . 43 . 35,36				35,29	30 . 19,31		15 . 49,52	69 . 16 . 49,14	☽.
	34 . 43 . 34,90								69 . 16 . 48,68	☽.
	31 . 18 . 5,19	29,950	63,2	63,8	34,52	3,76	9,306	8,44	69 . 5 . 52,67	Venus.
	28 . 47 . 38,99	29,956	63,7	65,0	31,14	1,81			66 . 35 . 16,60	Mars.
	30 . 30 . 57,80	30,000	67,4	68,5	33,21	4,26		15 . 45,50	68 . 34 . 20,53	⊙.
	31 . 2 . 28,18				33,91	4,32			68 . 34 . 20,55	⊙.
59,98	− 39 . 19 . 48,86	30,058	67,0	67,1	46,37				− 1 . 33 . 26,95	Polaris SP. R.
	− 39 . 19 . 47,01								− 1 . 33 . 25,10	Polaris SP.
58,73	32 . 10 . 36,37	30,068	66,6	66,5	35,66				69 . 58 . 20,31	Arcturus R.
	32 . 10 . 35,73								69 . 58 . 19,67	Arcturus.
	68 . 26 . 44,57	30,090	65,3	64,6	2 . 23,10	0,84	10,844	7,82	106 . 16 . 7,29	Saturn.
	78 . 29 . 58,50	30,106	62,0	59,9	4 . 35,07				116 . 21 . 41,85	A Ophiuchi.
	78 . 26 . 50,70				4 . 33,85				116 . 18 . 32,83	30 Scorpii.
58,48	− 67 . 54 . 15,43	30,108	61,5	60,2	2 . 20,60				− 30 . 9 . 27,75	31 Camel. SP. R.
	− 67 . 54 . 16,58								− 30 . 9 . 28,90	31 Camel. SP.
58,34	13 . 34 . 26,55	30,120	60,1	58,2	13,95				51 . 21 . 48,78	α Lyræ R.
	13 . 34 . 25,13								51 . 21 . 47,36	α Lyræ.
	30 . 40 . 52,13	30,086	66,2	66,5	33,65	4,28		15 . 45,60	68 . 44 . 15,38	⊙.
	31 . 12 . 23,33				34,36	4,34			68 . 44 . 16,03	⊙.
59,15	− 39 . 19 . 47,14	29,980	66,6	66,2	46,33				− 1 . 33 . 25,19	Polaris SP. R.
	− 39 . 19 . 46,94								− 1 . 33 . 24,99	Polaris SP.
	68 . 26 . 29,73	30,192	63,6	63,0	2 . 24,02	0,84	9,436	6,86	106 . 16 . 8,05	Saturn.
58,22	− 26 . 4 . 3,78	30,208	62,7	61,9	28,12				11 . 42 . 36,38	ζ Ursæ Min. R.
	− 26 . 4 . 5,44								11 . 42 . 34,72	ζ Ursæ Minoris.
58,52	55 . 27 . 55,88				1 . 23,34				93 . 16 . 27,50	δ Ophiuchi R.
	55 . 27 . 54,81								93 . 16 . 26,43	δ Ophiuchi.
59,92	13 . 34 . 23,38		59,8	58,7	13,97				51 . 21 . 45,63	α Lyræ R.
	13 . 34 . 25,11								51 . 21 . 47,36	α Lyræ.

Coincidence of Micrometer Wire with fixed Wire = 10^{r},094, 10^{r},091, 10^{r},097, 10^{r},097, 10^{r},104 at the five wires. From July 13 = 10^{r},094, at middle wire. For the Moon and Venus July 15, 10^{r},107, 10^{r},112, at 3 and 4½ intervals.

One Micrometer Revolution = 20″,855.

Correction for Runs = −3″,1. Run of B (used for N.L. of Sun July 13) = −2″,4.

Adopted Zenith Point = 336°. 38′. 59″,05.

Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
July 19	(*a*) ⊙ N.L. M.	7 . 40	2 . 47,8	59,7	55,3	56,3	56,5	50,7	16,200	-2 . 7,35	7 . 40 . 46,73	C.
	⊙ S.L.	8 . 10	2 . 10,6	21,4	18,1	20,2	19,4	15,2			8 . 12 . 17,25	C.
	(*b*) Mercury, center M.	7 . 45	2 . 40,3	52,0	46,6	51,1	48,5	43,5	16,200	-2 . 7,35	7 . 45 . 39,37	C.
	Venus N.L.	7 . 20	1 . 54,4	63,4	62,0	61,7	60,9	56,4			7 . 21 . 59,60	C.
July 20	⊙ S.L. M.	8 . 20	4 . 22,4	34,1	29,6	31,1	31,6	25,6	13,535	-1 . 11,76	8 . 23 . 16,89	C.
	(*c*) ⊙ N.L.	7 . 50	1 . 41,0	51,0	46,5	49,6	48,4	44,2			7 . 51 . 46,60	C.
	(*d*) Mercury, center ...	8 . 10	4 . 42,0	52,8	49,3	52,1	49,3	47,4			8 . 14 . 48,83	C.
	(*e*) A Ophiuchi (preceding)	55 . 5	3 . 50,2	64,2	54,5	58,0	56,6	54,2			55 . 8 . 55,88	C.
	(*e*) 30 Scorpii M.	55 . 5	3 . 50,2	64,2	54,5	58,0	56,6	54,2	18,960	-3 . 4,90	55 . 5 . 50,98	C.
	a Lyncis SP. R. M.	222 . 50	1 . 50,1	63,2	53,4	58,6	56,1	55,6	14,100	-1 . 23,55	222 . 50 . 32,42	C.
	(*f*) *a* Lyncis SP	270 . 25	2 . 24,9	35,6	27,3	31,9	28,6	29,7		- 1,11	270 . 27 . 28,29	C.
	(*g*) *α* Lyræ R. M.	143 . 0	4 . 1,0	15,1	7,8	9,9	9,2	7,1	8,784	+27,62 - 0,75	143 . 4 . 34,79	C.
	α Lyræ	350 . 10	3 . 16,7	28,5	24,3	23,9	24,6	20,2		+2,16	350 . 13 . 24,84	C.
July 21	⊙ N.L. M.	8 . 5	0 . 9,6	18,7	17,2	17,5	16,3	14,0	16,288	-2 . 9,18	8 . 3 . 6,35	C.
	⊙ S.L.	8 . 30	4 . 33,3	44,4	40,7	40,2	40,5	35,3			8 . 34 . 38,58	C.
July 22	Venus N.L.	7 . 0	1 . 17,1	25,9	25,1	23,3	23,5	20,6			7 . 1 . 22,43	C.
July 23	⊙ N.L. M.	8 . 25	3 . 49,2	61,3	58,4	57,6	57,7	51,6	16,162	-2 . 6,55	8 . 26 . 49,02	C.
	⊙ S.L.	8 . 55	3 . 16,3	26,5	23,0	23,4	23,3	18,7			8 . 58 . 21,52	C.
	(*h*) Venus N.L	6 . 50	5 . 30,8	41,8	39,0	36,7	38,7	34,2		+1,73	6 . 55 . 38,01	C.
	Mars, center	5 . 5	0 . 39,6	48,8	46,5	46,4	46,3	42,7			5 . 5 . 44,98	C.
July 24	(*i*) A Ophiuchi (preceding)	55 . 5	3 . 47,3	61,1	51,9	56,5	53,4	52,9			55 . 8 . 53,40	C.
	(*i*) 30 Scorpii M.	55 . 5	3 . 47,3	61,1	51,9	56,5	53,4	52,9	19,017	-3 . 5,97 - 0,30	55 . 5 . 47,13	C.
	α Lyræ R. M.	143 . 0	4 . 39,7	56,0	47,3	49,0	50,5	45,7	10,604	- 10,51	143 . 4 . 36,97	G.
	α Lyræ	350 . 10	3 . 16,8	29,6	24,5	25,5	26,2	19,5			350 . 13 . 23,30	G.
July 25	Venus N.L.	6 . 45	0 . 44,0	54,1	51,0	51,0	51,1	47,9			6 . 45 . 49,77	G.
	Mars, center	5 . 0	2 . 31,0	42,0	36,8	37,0	40,1	34,0			5 . 2 . 36,52	G.
July 26	(*k*) ⊙ S.L. M.	9 . 35	2 . 29,2	43,0	36,0	39,0	40,8	34,4	13,350	-1 . 7,78	9 . 36 . 28,99	G.
	⊙ N.L.	9 . 0	4 . 49,4	62,9	57,2	57,0	60,0	51,5			9 . 4 . 55,78	G.
	(*l*) Venus S.L. M.	6 . 40	2 . 19,8	32,2	25,9	28,4	28,6	25,0	11,165	- 22,21	6 . 42 . 4,17	G.
	Mars, center	5 . 0	1 . 15,5	24,9	19,7	20,8	22,3	17,7			5 . 1 . 20,00	G.
July 27	⊙ N.L. M.	9 . 15	3 . 36,0	52,8	42,1	46,9	47,4	41,8	11,398	- 27,08	9 . 18 . 17,00	G.
	⊙ S.L.	9 . 45	4 . 41,0	57,0	48,7	50,8	52,5	45,8			9 . 49 . 48,75	G.
	Mars, center	5 . 0	0 . 11,8	20,8	17,0	17,8	19,3	13,4			5 . 0 . 16,65	G.
	Venus N.L.	6 . 35	3 . 18,1	29,2	23,8	25,0	27,4	21,1			6 . 38 . 23,72	G.
July 28	(*m*) Jupiter S.L.	22 . 55	1 . 10,2	25,5	15,5	20,0	19,8	17,0			22 . 56 . 17,85	G.
	α Ophiuchi R. M. .	117 . 5	1 . 22,7	36,2	26,0	33,1	30,8	27,7	6,087	+1 . 23,69	117 . 7 . 52,94	G.
	(*n*) *α* Ophiuchi	16 . 5	4 . 57,8	72,5	63,8	68,8	68,0	64,0			16 . 10 . 5,82	G.
	δ Ursæ Min. R. M.	191 . 0	2 . 26,1	40,5	31,3	37,4	37,2	33,1	14,716	-1 . 36,27	191 . 0 . 57,70	G.
	δ Ursæ Minoris ...	302 . 15	2 . 0,0	9,4	2,4	6,4	4,8	2,7			302 . 17 . 4,05	G.
	α Lyræ R. M.	143 . 0	4 . 25,8	41,8	32,0	35,8	36,0	33,0	9,977	+2,57	143 . 4 . 36,12	G.
	α Lyræ	350 . 10	3 . 15,8	27,2	22,6	23,8	23,8	18,8			350 . 13 . 21,62	G.

Coincidences at the five wires and Runs taken July 31, 2h. (Temp. 65°,5).

(*a*) Much waving.
(*b*) Not good. Taken on micrometer wire, the tangent-screw failing.
(*c*) The observation of this limb very unsatisfactory.
(*d*) Small correction for runs.
(*e*) Extremely irregular refraction: the observations far from satisfactory.
(*f*) At the 5th wire.
(*g*) At 2½ and 4¼ intervals past middle wire.
(*h*) Just on leaving the field: very doubtful. Correction for change of N.P.D. = + 0″,36.
(*i*) Cloudy. Second observation at 5th wire.
(*k*) Misty.
(*l*) The circle divisions were bisected before the observation, and the two limbs were taken in quick succession on the micrometer wire, to have time for the observation of Mars.
(*m*) Faint.
(*n*) No correction for runs.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N.P.D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	31 . 1 . 46,45	30,086	67,9	69,3	33,93	4,32		15 . 45,70	69 . 5 . 10,04	⊙.
	31 . 33 . 16,97				34,64	4,39			69 . 5 . 9,80	⊙.
	31 . 6 . 39,09	30,076	68,4	69,6	34,01	3,32			68 . 54 . 18,06	Mercury.
	30 . 42 . 59,32	29,896	63,3	63,4	33,70	3,62	9,350	7,78	68 . 30 . 45,46	Venus.
	31 . 44 . 16,61	29,908	65,8	65,8	34,92	4,41		15 . 45,80	69 . 16 . 9,60	⊙.
	31 . 12 . 46,32				34,21	4,34			69 . 16 . 10,27	⊙.
	31 . 35 . 48,55	29,900	65,7	66,8	34,65	3,38			69 . 23 . 28,10	Mercury.
	78 . 29 . 55,60	29,916	59,6	57,3	4 . 34,81				116 . 21 . 38,69	A Ophiuchi.
	78 . 26 . 50,70				4 . 33,59				116 . 18 . 32,57	30 Scorpii.
60,36	– 66 . 11 . 32,14	29,910	58,8	56,7	2 . 9,58				– 28 . 26 . 33,44	*a* Lyncis SP. R.
	– 66 . 11 . 31,99								– 28 . 26 . 33,29	*a* Lyncis SP.
59,82	13 . 34 . 25,49		58,2	56,3	13,90				51 . 21 . 47,67	*α* Lyræ R.
	13 . 34 . 24,56								51 . 21 . 46,74	*α* Lyræ.
	31 . 24 . 6,07	30,006	60,4	60,5	34,95	4,37		15 . 45,80	69 . 27 . 30,73	⊙.
	31 . 55 . 38,30				35,67	4,43			69 . 27 . 32,02	⊙.
	30 . 22 . 22,15	30,072	56,8	56,5	33,90	3,52	9,428	6,96	68 . 10 . 7,77	Venus.
	31 . 47 . 48,74	30,044	59,7	60,4	35,54	4,42		15 . 46,00	69 . 51 . 14,14	⊙.
	32 . 19 . 21,24				36,28	4,48			69 . 51 . 15,32	⊙.
	30 . 16 . 37,73	29,896	56,1	55,3	33,66	3,49	9,473	6,71	68 . 4 . 22,89	Venus.
	28 . 26 . 44,70				31,23	1,81			66 . 14 . 22,40	Mars.
	78 . 29 . 53,12	29,916	53,3	52,2	4 . 37,73				116 . 21 . 39,13	A Ophiuchi.
	73 . 26 . 46,85				4 . 36,50				116 . 18 . 31,63	30 Scorpii.
60,14	13 . 34 . 23,31		52,9	50,7	14,07				51 . 21 . 45,66	*α* Lyræ R.
	13 . 34 . 23,02								51 . 21 . 45,37	*α* Lyræ.
	30 . 6 . 49,49	29,846	56,8	57,8	33,21	3,44	9,455	6,72	67 . 54 . 34,26	Venus.
	28 . 23 . 36,24				31,02	1,81			66 . 11 . 13,73	Mars.
	32 . 57 . 28,71	29,816	61,6	61,8	36,79	4,57		15 . 46,30	70 . 29 . 22,91	⊙.
	32 . 25 . 55,50				36,06	4,50			70 . 29 . 21,64	⊙.
	30 . 3 . 3,89	29,666	58,4	59,4	32,82	3,42	11,870	7,35	67 . 50 . 34,22	Venus.
	28 . 22 . 19,72				30,64	1,82			66 . 9 . 56,82	Mars.
	32 . 39 . 16,72	29,710	60,5	60,3	36,34	4,53		15 . 46,50	70 . 42 . 43,31	⊙.
	33 . 10 . 48,47				37,08	4,59			70 . 42 . 42,74	⊙.
	28 . 21 . 16,37	29,694	59,5		30,59	1,82			66 . 8 . 53,42	Mars.
	29 . 59 . 23,44				32,71	3,39	9,448	6,80	67 . 47 . 7,84	Venus.
	46 . 17 . 17,57	29,650	63,8	64,4	58,66	1,00	11,518	14,79	84 . 5 . 8,72	Jupiter.
59,38	39 . 31 . 7,34	29,604	59,5	56,3	46,97				77 . 19 . 2,59	*α* Ophiuchi R.
	39 . 31 . 5,54								77 . 19 . 0,79	*α* Ophiuchi.
60,88	– 34 . 21 . 57,42	29,594	57,0	54,0	39,12				3 . 24 . 31,74	δ Ursæ Min. R.
	– 34 . 21 . 56,23								3 . 24 . 32,93	δ Ursæ Minoris.
58,87	13 . 34 . 24,16				13,82				51 . 21 . 46,26	*α* Lyræ R.
	13 . 34 . 21,34								51 . 21 . 43,44	*α* Lyræ.

Coincidence of Micrometer Wire with fixed Wire = 10ʳ,094, 10ʳ,091, 10ʳ,094, 10ʳ,097, 10ʳ,104 at the five wires.

For Venus July 23 = 10ʳ,116, at $4\frac{1}{4}$ intervals. From July 24 = 10ʳ,092, 10ʳ,093, 10ʳ,100, 10ʳ,104, 10ʳ,108.

One Micrometer Revolution = 20″,855.

Correction for Runs = – 3″,1. From July 24 = – 3″,4.

Adopted Zenith point from July 19 = 336°. 39′. 0″,28.

Assumed Co-latitude = 37° . 47′ . 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
July 29	(*a*) ☽ N.L.	45 . 20	1 . 43,5	56,3	48,5	52,5	52,2	48,0		+ 7,28	45 . 21 . 57,25	G.
	☽ N.L. M.	45 . 20	1 . 43,5	56,3	48,5	52,5	52,2	48,0	9,928	+ 3,47 + 3,64	45 . 21 . 57,08	G.
	☽ N.L. M.	45 . 20	1 . 43,5	56,3	48,5	52,5	52,2	48,0	9,785	+ 6,57	45 . 21 . 56,54	G.
	☽ N.L. M.	45 . 20	1 . 43,5	56,3	48,5	52,5	52,2	48,0	9,610	+ 10,30 − 3,64	45 . 21 . 56,63	G.
	☽ N.L. M.	45 . 20	1 . 43,5	56,3	48,5	52,5	52,2	48,0	9,449	+ 13,74 − 7,28	45 . 21 . 56,43	G.
July 31	(*b*) ⊙ N.L. M.	10 . 15	0 . 21,0	32,3	27,0	30,3	31,0	25,9	12,010	− 39,84	10 . 14 . 48,03	G.
	⊙ S.L.	10 . 45	1 . 13,5	25,1	20,7	21,8	22,8	18,0			10 . 46 . 20,17	G.
	A Ophiuchi (preceding)	55 . 5	3 . 51,8	67,8	57,7	62,3	62,1	57,8			55 . 8 . 59,47	G.
	30 Scorpii M.	55 . 5	3 . 51,8	67,8	57,7	62,3	62,1	57,8	19,073	−3 . 7,13	55 . 5 . 52,34	G.
	α Lyræ R. M.	143 . 0	3 . 38,6	53,0	45,7	48,2	47,8	45,9	7,693	+ 50,20	143 . 4 . 36,30	G.
	α Lyræ	350 . 10	3 . 15,8	25,8	22,8	22,7	26,1	20,0			350 . 13 . 21,82	G.
	Venus N.L.	6 . 30	0 . 35,8	47,2	40,8	43,8	43,4	40,8			6 . 30 . 41,88	G.
Aug. 2	(*c*) ☽ S.L.	58 . 30	0 . 25,7	39,1	29,1	34,8	34,2	32,7		+ 0,30	58 . 30 . 32,85	G.
	☽ S.L. M	58 . 30	0 . 25,7	39,1	29,1	34,8	34,2	32,7	10,100	− 0,13 + 0,15	58 . 30 . 32,57	G.
	☽ S.L. M	58 . 30	0 . 25,7	39,1	29,1	34,8	34,2	32,7	9,908	+ 4,01	58 . 30 . 36,56	G.
	☽ S.L. M	58 . 30	0 . 25,7	39,1	29,1	34,8	34,2	32,7	9,910	+ 4,05 − 0,15	58 . 30 . 36,45	G.
	☽ S.L. M	58 . 30	0 . 25,7	39,1	29,1	34,8	34,2	32,7	9,940	+ 3,51 − 0,30	58 . 30 . 35,76	G.
	δ Sagittarii	58 . 35	3 . 51,0	66,0	56,3	60,6	61,2	56,5			58 . 38 . 58,15	G.
	φ Sagittarii	55 . 55	0 . 58,2	73,8	62,7	67,4	66,8	64,3			55 . 56 . 5,42	G.
	Mars, center	4 . 55	3 . 6,5	19,8	14,0	13,7	16,3	9,8			4 . 58 . 12,98	G.
	Venus N.L.	6 . 30	0 . 24,8	36,0	30,0	32,5	33,0	29,0			6 . 30 . 30,83	G.
Aug. 3	⊙ N.L. M.	11 . 0	0 . 27,4	42,5	34,8	38,9	38,1	33,8	10,851	− 15,62	11 . 0 . 20,26	G.
	⊙ S.L.	11 . 30	1 . 47,0	60,0	54,0	56,1	55,0	50,8			11 . 31 . 53,68	G.
	Mercury, center	16 . 50	3 . 49,0	64,3	56,5	58,2	59,0	53,6			16 . 53 . 56,50	G.
Aug. 4	(*d*) ☽ S.L	55 . 0	2 . 57,8	71,3	61,6	68,5	67,3	62,7		− 5,72	55 . 2 . 58,95	G.
	☽ S.L. M	55 . 0	2 . 57,8	71,3	61,6	68,5	67,3	62,7	10,326	− 4,78 − 2,86	55 . 2 . 57,03	G.
	☽ S.L. M	55 . 0	2 . 57,8	71,3	61,6	68,5	67,3	62,7	10,432	− 6,89	55 . 2 . 57,78	G.
	☽ S.L. M	55 . 0	2 . 57,8	71,3	61,6	68,5	67,3	62,7	10,562	− 9,46 + 2,86	55 . 2 . 58,07	G.
	☽ S.L. M	55 . 0	2 . 57,8	71,3	61,6	68,5	67,3	62,7	10,730	− 12,93 + 5,72	55 . 2 . 57,46	G.
Aug. 5	(*a*) ☽ S.L.	50 . 25	4 . 19,7	31,5	23,0	27,4	27,2	26,2		− 7,94	50 . 29 . 17,59	G.
	☽ S.L. M.	50 . 25	4 . 19,7	31,5	23,0	27,4	27,2	26,2	10,262	− 3,44 − 3,97	50 . 29 . 18,12	G.
	☽ S.L. M	50 . 25	4 . 19,7	31,5	23,0	27,4	27,2	26,2	10,487	− 8,03	50 . 29 . 17,50	G.
	☽ S.L. M.	50 . 25	4 . 19,7	31,5	23,0	27,4	27,2	26,2	10,700	− 12,35 + 3,97	50 . 29 . 17,15	G.
	☽ S.L. M	50 . 25	4 . 19,7	31,5	23,0	27,4	27,2	26,2	10,848	− 15,40 + 7,94	50 . 29 . 18,07	G.

Coincidences at the five wires and Runs taken Aug. 6, 23^h. (Therm. 61°,4).

(*a*) At the five wires.

(*b*) Very hurried.

(*c*) At the five wires. Much waving of the limb, the Moon being low. The micrometer and fixed wires were too close for satisfactory bisections: the change of declination being very slow, *all* the bisections should have been made with the micrometer-wire.

(*d*) At the five wires. The sky clearing unexpectedly, the shutters were but just opened.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	68 . 42 . 56,97	29,476	60,0	59,5					105 . 56 . 27,39	☽.
	68 . 42 . 56,80								105 . 56 . 27,22	☽.
	68 . 42 . 56,26				2 . 23,59	50 . 58,81		14 . 57,36	105 . 56 . 26,68	☽.
	68 . 42 . 56,35								105 . 56 . 26,77	☽.
	68 . 42 . 56,15								105 . 56 . 26,57	☽.
	33 . 35 . 47,75	29,774	63,0	64,0	37,47	4,65		15 . 47,00	71 . 39 . 15,85	☉.
	34 . 7 . 19,89				38,22	4,71			71 . 39 . 14,68	☉.
	78 . 29 . 59,19	29,888	60,8	59,6	4 . 33,26				116 . 21 . 40,73	A Ophiuchi.
	78 . 26 . 52,06				4 . 32,05				116 . 18 . 32,39	30 Scorpii.
59,06	13 . 34 . 23,98	29,896	59,3	57,6	13,86				51 . 21 . 46,12	α Lyræ R.
	13 . 34 . 21,54								51 . 21 . 43,68	α Lyræ.
	29 . 51 . 41,60	29,950	60,2	62,1	32,71	3,31	9,500	6,26	67 . 39 . 25,54	Venus.
	81 . 51 . 32,57	29,614	60,5	58,8					118 . 31 . 42,95	☽.
	81 . 51 . 32,29								118 . 31 . 42,67	☽.
	81 . 51 . 36,28				6 . 16,16	57 . 23,88		15 . 50,18	118 . 31 . 46,66	☽.
	81 . 51 . 36,17								118 . 31 . 46,55	☽.
	81 . 51 . 35,48								118 . 31 . 45,86	☽.
	81 . 59 . 57,87				6 . 22,21				119 . 53 . 28,36	δ Sagittarii.
	79 . 17 . 5,14				4 . 50,41				117 . 9 . 3,83	φ Sagittarii.
	28 . 19 . 12,70	29,600	63,6	64,0	30,23	1,83			66 . 6 . 49,38	Mars.
	29 . 51 . 30,55				32,20	3,28	9,458	6,69	67 . 13 . 14,44	Venus.
	34 . 21 . 19,98	29,618	66,8	66,8	38,14	4,74		15 . 47,30	72 . 24 . 48,96	☉.
	34 . 52 . 53,40				38,90	4,81			72 . 24 . 48,47	☉.
	40 . 14 . 56,22		67,6	68,4	47,08	4,61			78 . 2 . 46,97	Mercury.
	78 . 23 . 58,67	29,500	63,6	62,0					115 . 0 . 48,19	☽.
	78 . 23 . 56,75								115 . 0 . 46,27	☽.
	78 . 23 . 57,50				4 . 26,12	58 . 26,92		16 . 17,96	115 . 0 . 47,02	☽.
	78 . 23 . 57,79								115 . 0 . 47,31	☽.
	78 . 23 . 57,18								115 . 0 . 46,70	☽.
	73 . 50 . 17,31	29,444	60,0	58,4					110 . 26 . 19,01	☽.
	73 . 50 . 17,84								110 . 26 . 19,54	☽.
	73 . 50 . 17,22				3 . 12,04	57 . 51,15		16 . 27,47	110 . 26 . 18,92	☽.
	73 . 50 . 16,87								110 . 26 . 18,57	☽.
	73 . 50 . 17,79								110 . 26 . 10,49	☽.

Coincidence of Micrometer Wire with fixed Wire = 10r,092, 10r,093, 10r,100, 10r,104, 10r,108 at the five wires.
From Aug. 3 = 10r,097, 10r,097, 10r,102, 10r,108, 10r,110.
One Micrometer Revolution = 20″,855.
Correction for Runs = – 3″,4. From Aug. 3 = – 2″,0.
Adopted Zenith Point = 336°. 39′. 0″,28.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes. A	B	C	D	E	F	Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Aug. 6	⊙ S.L. M.	12 . 15	4 . 47,7	61,0	54,0	56,3	55,8	51,0	9,700	+ 8,38	12 . 20 . 2,35	G.
	⊙ N.L.	11 . 45	3 . 22,0	34,8	27,0	29,2	29,2	25,7			11 . 48 . 27,75	G.
	δ Capricorni	45 . 40	0 . 37,3	49,0	41,5	46,8	44,0	44,1			45 . 40 . 43,73	G.
	ι Aquarii	43 . 25	3 . 29,8	41,2	34,3	37,8	38,3	35,8			43 . 28 . 35,97	G.
	(a) ☽ N.L.	43 . 55	0 . 29,1	40,2	32,8	39,1	35,0	35,9		+ 9,32	43 . 55 . 44,64	G.
	(b) σ Aquarii	40 . 15	4 . 54,5	65,2	59,3	63,2	59,5	59,7			40 . 20 . 0,23	G.
	Uranus	36 . 50	0 . 8,1	18,1	12,3	17,2	13,0	13,8			36 . 50 . 13,73	G.
Aug. 8	⊙ S.L. M.	12 . 50	3 . 19,7	31,2	25,4	27,0	26,5	23,5	9,947	+ 3,23	12 . 53 . 28,55	G.
	(c) ⊙ N.L.	12 . 20	1 . 51,5	62,0	59,8	59,5	58,6	55,0			12 . 21 . 57,60	G.
	γ Aquilæ R. M.	114 . 35	4 . 15,8	31,7	21,4	25,6	21,4	21,9	6,880	+1 . 7,20	114 . 40 . 29,87	G.
	γ Aquilæ	18 . 35	2 . 23,3	39,0	31,7	33,3	31,3	30,0			18 . 37 . 31,27	G.
	α Aquilæ R. M.	112 . 50	3 . 26,8	41,2	31,3	35,8	32,7	32,0	9,180	+ 17,14	112 . 53 . 50,21	G.
	α Aquilæ	20 . 20	4 . 0,2	15,2	7,5	10,0	7,7	5,5			20 . 24 . 7,42	G.
	β Aquilæ R. M.	110 . 20	4 . 26,0	40,0	29,5	35,3	30,9	30,1	1,127	+3 . 7,17	110 . 27 . 38,84	G.
	β Aquilæ	22 . 50	0 . 13,1	28,8	19,0	24,8	19,8	20,2			22 . 50 . 20,93	G.
	(d) λ Ursæ Min. R. M.	193 . 15	0 . 15,0	29,7	20,8	26,6	22,5	23,0	11,594	− 31,12	193 . 14 . 51,78	G.
	λ Ursæ Minoris	300 . 0	3 . 9,0	18,8	12,2	14,8	10,0	11,6			300 . 3 . 12,52	G.
	α Cygni R. M.	149 . 5	4 . 19,7	33,0	25,5	29,8	26,3	24,9	12,381	− 47,53	149 . 8 . 38,70	G.
	α Cygni	344 . 5	4 . 15,5	27,6	23,0	24,7	22,4	19,8			344 . 9 . 21,87	G.
	Uranus	36 . 50	1 . 39,0	51,2	44,5	48,2	44,8	44,9			36 . 51 . 45,32	G.
Aug. 10	Mars, center	5 . 5	1 . 19,3	32,3	25,0	28,3	29,2	23,1			5 . 6 . 26,10	G.
	Venus S.L.	6 . 50	4 . 38,8	52,4	45,0	46,7	48,9	42,0			6 . 54 . 45,32	G.
Aug. 11	⊙ N.L. M.	13 . 10	4 . 18,7	34,4	23,7	28,3	29,8	22,4	11,370	− 26,45	13 . 13 . 59,47	G.
	⊙ S.L.	13 . 45	0 . 28,1	41,2	32,0	37,7	37,8	32,7			13 . 45 . 34,88	G.
	(e) Mercury, center	22 . 15	4 . 54,7	70,5	59,6	63,8	64,5	60,0			22 . 20 . 1,85	G.
	(f) Jupiter N.L.	23 . 55	4 . 30,9	46,5	35,5	40,2	40,8	34,9			23 . 59 . 37,83	G.
	(g) A Ophiuchi (preceding)	55 . 5	3 . 49,7	65,7	54,4	59,0	58,7	55,8			55 . 8 . 56,95	G.
	(g) 30 Scorpii M.	55 . 5	3 . 49,7	65,7	54,4	59,0	58,7	55,8	18,868	−3 . 2,82	55 . 5 . 54,13	G.
	79 Herculis	4 . 25	1 . 32,4	42,6	37,3	39,8	39,4	37,2			4 . 26 . 38,02	G.
	δ Sagittarii	58 . 35	3 . 50,8	65,3	55,4	59,6	60,2	57,0			58 . 38 . 57,78	G.
	(h) δ Ursæ Min. R. M.	191 . 0	2 . 17,8	29,0	21,2	26,1	25,1	23,8	14,037	−1 . 22,07	191 . 1 . 1,60	G.
	δ Ursæ Minoris	302 . 15	1 . 53,8	64,0	58,0	60,0	58,8	57,2			302 . 16 . 58,50	G.
	α Lyræ R. M.	143 . 0	4 . 10,3	24,0	15,8	18,5	18,6	16,9	9,073	+ 21,47	143 . 4 . 38,54	G.
	α Lyræ	350 . 10	3 . 12,5	23,9	18,6	19,6	20,6	15,6			350 . 13 . 18,25	G.
	φ Sagittarii	55 . 55	0 . 56,2	69,3	60,4	64,8	64,8	63,6			55 . 56 . 3,12	G.
	(i) Uranus	36 . 50	4 . 11,3	24,9	15,9	19,2	18,3	15,4			36 . 54 . 17,22	G.
Aug. 13	⊙ N.L. M.	13 . 45	4 . 40,0	55,5	46,2	50,2	50,6	43,9	9,480	+ 12,93	13 . 50 . 0,51	G.
	⊙ S.L.	14 . 20	1 . 30,0	42,0	34,8	38,8	37,3	32,8			14 . 21 . 35,90	G.
	79 Herculis	4 . 25	1 . 34,2	45,0	39,0	41,3	41,1	36,7			4 . 26 . 39,50	G.
	(k) α Lyræ R. M.	143 . 0	4 . 13,0	27,4	18,2	21,5	21,9	17,5	9,050	+ 21,90	143 . 4 . 41,68	G.
	α Lyræ	350 . 10	3 . 13,5	25,0	19,0	20,8	19,4	15,0			350 . 13 . 18,68	G.
	β Lyræ R. M.	137 . 35	3 . 4,1	20,9	9,8	13,4	11,5	8,8	12,588	− 51,89	137 . 37 . 19,43	G.
	β Lyræ	355 . 40	0 . 35,9	47,8	41,0	44,0	43,3	38,8			355 . 40 . 41,78	G.
	γ Aquilæ R. M.	114 . 40	1 . 16,1	31,1	19,7	25,4	21,8	21,0	12,590	− 51,93	114 . 40 . 30,55	G.
	γ Aquilæ	18 . 35	2 . 24,5	38,7	29,0	32,8	33,0	28,8			18 . 37 . 31,07	G.
	α Aquilæ R. M.	112 . 50	3 . 17,5	33,2	20,5	25,6	24,0	20,0	8,628	+ 30,70	112 . 53 . 54,07	G.
	α Aquilæ	20 . 20	4 . 1,0	17,0	6,2	10,0	8,8	4,5			20 . 24 . 7,80	G.
	Uranus	36 . 55	0 . 49,0	64,6	53,4	59,5	55,8	53,9			36 . 55 . 56,00	G.

Coincidence at the middle wire and Runs taken Aug. 17, 1h. (Therm. 66°.)

(a) At the 5th wire. (b) No correction for runs.
(c) Cloudy. (d) Very faint and doubtful.
(e) Badly defined. (f) Faint.
(g) The observation of 30 Scorpii was marked as very faint. It is probable that the state of the atmosphere was at this time very unfavorable for the observation of low stars.
(h) Mercury slightly waving.
(i) Misty.
(k) The mercury ruffled by wind.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	35 . 41 . 2,07	29,388	64,0	64,4	39,95	4,90		15 . 47,80	73 . 12 . 57,60	⊙.
	35 . 9 . 27,47				39,18	4,84			73 . 12 . 57,89	⊙.
	69 . 1 . 43,45	29,466	60,0	57,6	2 . 26,41				106 . 51 . 18,14	δ Capricorni.
	66 . 49 . 35,69				2 . 11,30				104 . 38 . 55,27	ι Aquarii.
	67 . 16 . 44,36		58,0	56,7	2 . 14,43	55 . 49,31		16 . 32,63	104 . 26 . 50,39	☽.
	63 . 40 . 59,95				1 . 54,03				101 . 30 . 2,26	σ Aquarii.
	60 . 11 . 13,45				1 . 38,55	0,39			97 . 59 . 59,89	Uranus.
	36 . 14 . 28,27	29,950	61,0	59,3	41,98	4,97		15 . 48,10	73 . 46 . 25,46	⊙.
	35 . 42 . 57,32				41,18	4,91			73 . 46 . 29,97	⊙.
60,57	41 . 58 . 30,41	30,100	56,5	54,3	52,29				79 . 46 . 30,98	γ Aquilæ R.
	41 . 58 . 30,99								79 . 46 . 31,56	γ Aquilæ.
58,82	43 . 45 . 10,07				55,64				81 . 33 . 13,99	α Aquilæ R.
	43 . 45 . 7,14								81 . 33 . 11,06	α Aquilæ.
59,88	46 . 11 . 21,44				1 . 0,56				83 . 59 . 30,28	β Aquilæ R.
	46 . 11 . 20,65								83 . 59 . 29,49	β Aquilæ.
62,15	− 36 . 35 . 51,50				43,18				1 . 10 . 33,60	λ Ursæ Min. R.
	− 36 . 35 . 47,76								1 . 10 . 37,34	λ Ursæ Minoris.
60,29	7 . 30 . 21,58				7,67				45 . 17 . 37,53	α Cygni R.
	7 . 30 . 21,59								45 . 17 . 37,54	α Cygni.
	60 . 12 . 45,04	30,104	54,7	51,5	1 . 41,86	0,39			98 . 1 . 34,79	Uranus.
	28 . 27 . 25,82	29,974	67,8	69,4	30,46	1,87			66 . 15 . 2,69	Mars.
	30 . 15 . 45,04	29,980	69,5	70,0	32,76	3,20	10,786	7,14	68 . 3 . 15,74	Venus.
	36 . 34 . 59,19	29,988	72,6	72,8	41,44	5,02		15 . 48,50	74 . 38 . 32,39	⊙.
	37 . 6 . 34,60				42,24	5,08			74 . 38 . 31,54	⊙.
	45 . 41 . 1,57		73,8	74,0	57,00	5,57			83 . 29 . 1,28	Mercury.
	47 . 20 . 37,55				1 . 0,40	1,00	8,642	15,22	85 . 9 . 0,45	Jupiter.
	78 . 29 . 56,67	29,992	69,4	67,8	4 . 29,60				116 . 21 . 34,55	A Ophiuchi.
	78 . 26 . 53,85				4 . 28,45				116 . 18 . 30,58	30 Scorpii.
	27 . 47 . 37,74				29,73				65 . 35 . 15,75	79 Herculis.
	81 . 59 . 57,50		67,6	65,5	6 . 21,69				119 . 53 . 27,47	δ Sagittarii.
60,05	− 34 . 22 . 1,32				38,74				3 . 24 . 28,22	δ Ursæ Min. R.
	− 34 . 22 . 1,78								3 . 24 . 27,76	δ Ursæ Minoris.
58,40	13 . 34 . 21,74				13,69				51 . 21 . 43,71	α Lyræ R.
	13 . 34 . 17,97								51 . 21 . 39,94	α Lyræ.
	79 . 17 . 2,84				4 . 50,07				117 . 9 . 1,19	φ Sagittarii.
	60 . 15 . 16,94	29,990	61,6	60,2	1 . 39,87	0,39			98 . 4 . 4,70	Uranus.
	37 . 11 . 0,23	30,000	67,0	67,0	42,85	5,09		15 . 48,90	75 . 14 . 35,17	⊙.
	37 . 42 . 35,62				43,67	5,15			75 . 14 . 33,52	⊙.
	27 . 47 . 39,22	30,088	61,0	59,7	30,31				65 . 35 . 17,81	79 Herculis.
60,18	13 . 34 . 18,60			58,8	13,92				51 . 21 . 40,80	α Lyræ R.
	13 . 34 . 18,40								51 . 21 . 40,60	α Lyræ.
60,61	19 . 1 . 40,85				19,87				56 . 49 . 9,00	β Lyræ R.
	19 . 1 . 41,50								56 . 49 . 9,65	β Lyræ.
60,81	41 . 58 . 29,73		60,0	58,0	51,88				79 . 46 . 29,89	γ Aquilæ R.
	41 . 58 . 30,79								79 . 46 . 30,95	γ Aquilæ.
60,94	43 . 45 . 6,21				55,20				81 . 33 . 9,69	α Aquilæ R.
	43 . 45 . 7,52								81 . 33 . 11,00	α Aquilæ.
	60 . 16 . 55,72	30,096	57,8	55,5	1 . 41,29	0,39			98 . 5 . 44,90	Uranus.

Coincidence of Micrometer Wire with fixed Wire = $10^{r},097$, $10^{r},097$, $10^{r},102$, $10^{r},108$, $10^{r},110$ at the five wires. From Aug. 13 = $10^{r},100$ at the middle Wire.

One Micrometer Revolution = 20″,855.

Correction for Runs = − 2″,0. From Aug. 13 = − 0″,9.

Adopted Zenith Point = 336° . 39′ . 0″,28.

Assumed Co-latitude = 37° . 47′ . 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Aug. 13	(*a*) ☽ N.L.	1 . 55	0 . 29,4	39,0	35,2	36,6	35,8	31,3		- 3,46	1 . 55 . 31,07	G.
	☽ N.L. M.	1 . 55	0 . 29,4	39,0	35,2	36,6	35,8	31,3	10,065	+ 0,65 - 1,73	1 . 55 . 33,45	G.
	☽ N.L. M.	1 . 55	0 . 29,4	39,0	35,2	36,6	35,8	31,3	10,194	- 1,96	1 . 55 . 32,57	G.
	☽ N.L. M.	1 . 55	0 . 29,4	39,0	35,2	36,6	35,8	31,3	10,415	- 6,43 + 1,73	1 . 55 . 29,83	G.
	☽ N.L. M.	1 . 55	0 . 29,4	39,0	35,2	36,6	35,8	31,3	10,540	- 8,99 + 3,46	1 . 55 . 29,00	G.
	Rigel R. M.	96 . 0	4 . 24,3	33,3	26,9	30,5	27,7	26,6	9,930	+ 3,55	96 . 4 . 31,63	G.
	Rigel	37 . 10	3 . 24,3	34,8	27,0	30,0	28,5	27,0			37 . 13 . 28,50	G.
	Venus S.L.	7 . 10	4 . 0,0	8,6	6,6	5,5	5,5	0,1			7 . 14 . 4,27	G.
Aug. 14	(*b*) ☉ S.L. M.	14 . 35	4 . 18,4	29,8	23,5	25,1	25,0	20,5	8,464	+ 34,13	14 . 39 . 57,71	G.
	☉ N.L.	14 . 5	3 . 17,4	26,2	22,8	22,7	21,8	18,2			14 . 8 . 21,42	G.
	Uranus	36 . 55	1 . 42,1	54,0	46,8	50,2	45,3	47,8			36 . 56 . 47,65	G.
Aug. 15	79 Herculis	4 . 25	1 . 33,3	41,7	38,0	39,3	36,6	36,5			4 . 26 . 37,52	G.
	δ Ursæ Min. R. M.	191 . 0	2 . 14,6	27,8	19,3	23,0	19,3	20,7	13,978	- 1 . 20,88	191 . 0 . 59,84	G.
	δ Ursæ Minoris	302 . 15	2 . 0,0	8,2	2,2	3,5	0,0	2,0			302 . 17 . 2,58	G.
	α Lyræ R. M.	143 . 0	4 . 12,3	25,9	19,0	20,4	18,0	18,8	8,972	+ 23,54	143 . 4 . 42,47	G.
	α Lyræ	350 . 10	3 . 13,3	22,7	20,0	19,4	17,3	15,8			350 . 13 . 17,98	G.
	Uranus	36 . 55	2 . 29,4	41,0	33,7	36,3	32,6	35,0			36 . 57 . 34,58	G.
Aug. 16	Mars, center	5 . 20	0 . 33,8	40,3	39,6	39,8	38,8	37,5			5 . 20 . 38,28	G.
	Venus S.L.	7 . 35	3 . 51,6	58,8	56,0	56,3	55,8	52,2			7 . 38 . 55,00	G.
Aug. 17	(*c*) ☉ N.L. M.	15 . 0	4 . 20,0	35,6	23,4	30,3	28,1	25,0	9,138	+ 20,06	15 . 4 . 46,99	G.
	☉ S.L.	15 . 35	1 . 16,0	28,5	19,2	25,0	21,8	19,9			15 . 36 . 21,70	G.
	Venus S.L.	7 . 45	3 . 19,8	28,8	23,5	25,8	25,5	21,5			7 . 48 . 24,05	G.
Aug. 18	(*d*) ☉ S.L. M.	15 . 55	1 . 19,8	31,1	24,0	28,2	26,6	23,0	12,205	- 43,90	15 . 55 . 41,50	G.
	☉ N.L.	15 . 20	3 . 57,8	69,2	64,1	65,0	65,8	59,8			15 . 24 . 3,50	G.
Aug. 20	☉ S.L. M	16 . 35	0 . 28,4	39,7	33,2	35,8	34,2	33,0	12,230	- 44,35	16 . 34 . 49,70	G.
	☉ N.L.	16 . 0	3 . 4,0	14,5	9,8	10,7	9,7	6,7			16 . 3 . 9,17	G.
Aug. 21	(*e*) ☉ N.L. M.	16 . 20	3 . 9,0	21,8	14,8	17,4	16,4	12,9	10,758	- 13,63	16 . 23 . 1,69	G.
	☉ S.L.	16 . 50	4 . 37,1	47,8	41,8	42,0	43,8	38,8			16 . 54 . 41,77	G.
	Mercury, center	28 . 35	0 . 14,0	26,3	19,0	23,0	20,5	19,3			28 . 35 . 20,35	G.
	Uranus	37 . 0	2 . 52,8	62,5	56,7	59,4	54,4	55,8			37 . 2 . 56,87	G.
Aug. 22	Mars, center	5 . 40	1 . 12,0	21,7	18,0	17,0	16,0	14,8			5 . 41 . 16,55	G.
	Venus S.L.	8 . 40	4 . 50,0	59,2	56,8	55,5	54,3	50,2			8 . 44 . 54,22	G.
Aug. 23	Mercury, center	29 . 40	1 . 9,8	21,0	13,4	18,0	13,6	14,3			29 . 41 . 14,98	G.
	Procyon R. M.	110 . 5	1 . 10,0	20,5	12,1	17,9	10,2	11,9	12,480	- 49,56	110 . 5 . 24,17	G.
	Procyon	23 . 10	2 . 32,3	43,5	35,4	38,3	35,7	35,7			23 . 12 . 36,75	G.
	Pollux R. M	132 . 50	1 . 32,8	43,0	34,8	40,3	35,0	35,7	10,958	- 17,80	132 . 51 . 19,10	G.
	Pollux	0 . 25	1 . 38,2	46,8	43,3	43,1	42,1	38,4			0 . 26 . 41,95	G.
	Venus S.L.	8 . 55	2 . 53,6	62,0	59,9	58,6	58,0	54,4			8 . 57 . 57,68	G.
Aug. 24	Uranus	37 . 5	0 . 28,5	40,3	30,4	35,4	33,0	33,2			37 . 5 . 33,45	G.
	α Pegasi R. M.	118 . 45	2 . 19,4	33,1	22,0	26,1	24,3	24,1	10,530	- 8,89	118 . 47 . 15,89	G.
	α Pegasi	14 . 30	0 . 40,1	49,7	44,8	45,8	44,2	43,8			14 . 30 . 44,72	G.

Coincidence at the middle Wire and Runs taken Aug. 23, 1ʰ. (Therm. 61°.)

(*a*) At the five wires.
(*b*) Without dark glass.
(*c*) Without dark glass; but somewhat dazzling.
(*d*) Not good. Without dark glass.
(*e*) Cloudy.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	25 . 16 . 30,79	30,136	60,0	57,7					62 . 55 . 29,42	☽.
	25 . 16 . 33,17								62 . 55 . 31,80	☽.
	25 . 16 . 32,29				27,31	24 . 11,41		15 . 34,45	62 . 55 . 30,92	☽.
	25 . 16 . 29,55								62 . 55 . 28,18	☽.
	25 . 16 . 28,72								62 . 55 . 27,35	☽.
60,07	60 . 34 . 28,65				1 . 42,17				98 . 23 . 19,10	Rigel R.
	60 . 34 . 28,22								98 . 23 . 18,67	Rigel.
	30 . 35 . 3,99		61,5	61,8	33,90	3,19	10,740	6,69	68 . 22 . 36,29	Venus.
	38 . 0 . 57,43	30,120	63,8	64,2	44,58	5,19		15 . 49,00	75 . 32 . 56,10	⊙.
	37 . 29 . 21,14				43,74	5,13			75 . 32 . 57,03	⊙.
	60 . 17 . 47,37	30,042	57,3	55,0	1 . 41,26	0,39			98 . 6 . 36,52	Uranus.
	27 . 47 . 37,24	30,086	59,5	57,6	30,44				65 . 35 . 15,96	79 Herculis.
61,21	- 34 . 21 . 59,56	30,092	58,0	56,1	39,61				3 . 24 . 29,11	δ Ursæ Min. R.
	- 34 . 21 . 57,70								3 . 24 . 30,97	δ Ursæ Minoris.
60,23	13 . 34 . 17,81				13,99				51 . 21 . 40,08	α Lyræ R.
	13 . 34 . 17,70								51 . 21 . 39,97	α Lyræ.
	60 . 18 . 34,30	30,068	53,2	48,5	1 . 42,76	0,39			98 . 7 . 24,95	Uranus.
	28 . 41 . 38,00	30,104	60,8	59,4	31,51	1,90			66 . 29 . 15,89	Mars.
	30 . 59 . 54,72		59,8	58,8	34,63	3,19	10,738	6,68	68 . 47 . 27,76	Venus.
	38 . 25 . 46,71	30,126	62,8	63,2	45,35	5,24		15 . 49,60	76 . 29 . 24,70	⊙.
	38 . 57 . 21,42				46,21	5,30			76 . 29 . 21,01	⊙.
	31 . 9 . 23,77	30,150	62,3	63,8	34,55	3,19	10,723	6,52	68 . 56 . 56,89	Venus.
	39 . 16 . 41,22	30,144	65,4	67,7	46,35	5,34		15 . 49,80	76 . 48 . 40,71	⊙.
	38 . 45 . 3,22				45,49	5,28			76 . 48 . 41,51	⊙.
	39 . 55 . 49,42	29,672	63,4	64,0	47,04	5,41		15 . 50,20	77 . 27 . 49,13	⊙.
	39 . 24 . 8,89				46,17	5,35			77 . 27 . 48,19	⊙.
	39 . 44 . 1,41	29,240	65,6	65,6	45,89	5,39		15 . 50,40	77 . 47 . 40,59	⊙.
	40 . 15 . 41,49				46,75	5,45			77 . 47 . 40,67	⊙.
	51 . 56 . 20,07	29,250	67,0	67,2	1 . 10,23	7,03			89 . 44 . 31,55	Mercury.
	60 . 23 . 56,59	29,214	54,8	53,4	1 . 39,22	0,39			98 . 12 . 43,70	Uranus.
	29 . 2 . 16,27	29,350	58,8	59,1	31,18	1,95			66 . 49 . 53,78	Mars.
	32 . 5 . 53,94	29,364	60,3	60,3	35,16	3,22	10,746	6,73	69 . 53 . 27,43	Venus.
	53 . 2 . 14,70	29,426	61,6	62,9	1 . 14,13	7,36			90 . 50 . 29,75	Mercury.
60,46	46 . 33 . 36,11	29,866	57,4	57,3	1 . 0,50				84 . 21 . 44,89	Procyon R.
	46 . 33 . 36,47								84 . 21 . 45,25	Procyon.
60,53	23 . 47 . 41,18				25,29				61 . 35 . 14,75	Pollux R.
	23 . 47 . 41,67								61 . 35 . 15,24	Pollux.
	32 . 18 . 57,40	29,880	58,3	58,0	36,25	3,22	10,730	6,57	70 . 6 . 32,14	Venus.
	60 . 26 . 33,17	29,994	55,8	52,3	1 . 42,26	0,39			98 . 15 . 23,32	Uranus.
60,31	37 . 51 . 44,39				45,22				75 . 39 . 37,89	α Pegasi R.
	37 . 51 . 44,44								75 . 39 . 37,94	α Pegasi.

Coincidence of Micrometer Wire with fixed Wire = 10r,096, 10r,096, 10r,100, 10r,107, 10r,109 at the five wires.
From Aug. 20 = 10r,104 at the middle Wire.

One Micrometer Revolution = 20″,855.

Correction for Runs = − 0″,9. From Aug. 20 = − 0″,7.

Adopted Zenith Point = 336°. 39′. 0″,28.

Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes. A	B	C	D	E	F	Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Aug.24	Procyon R. M.....	110. 5	1.29,7	40,2	32,0	38,4	31,9	33,8	13,370	-1. 8,12	110. 5.26,18	G.
	Procyon..........	23.10	2.31,9	44,0	36,3	37,8	36,4	35,9			23.12.36,98	G.
	Venus S.L.........	9.10	1.29,4	39,0	34,6	34,3	34,7	32,0			9.11.33,97	G.
Aug.25	(*a*) ☉ N.L. M........	17.45	0.14,4	26,8	19,2	22,8	20,3	19,1	12,978	-59,93	17.44.20,50	G.
	☉ S.L.	18.15	0.55,2	69,0	62,3	65,4	62,4	59,4			18.16. 2,27	G.
Aug.26	(*b*) ☽ N.L. M.........	48.30	4.50,8	65,2	54,8	59,1	58,1	54,2	11,311	-25,37 +6,74	48.34.38,29	G.
	☽ N.L. M.........	48.30	4.50,8	65,2	54,8	59,1	58,1	54,2	11,328	-25,64 +3,37	48.34.34,65	G.
	☽ N.L. M.	48.30	4.50,8	65,2	54,8	59,1	58,1	54,2	11,194	-22,70	48.34.34,22	G.
	☽ N.L. M.	48.30	4.50,8	65,2	54,8	59,1	58,1	54,2	11,083	-20,31 -3,37	48.34.33,24	G.
	☽ N.L. M.	48.30	4.50,8	65,2	54,8	59,1	58,1	54,2	10,900	-16,44 -6,74	48.34.33,74	G.
	Mars, center......	5.55	3.21,4	32,3	26,0	25,5	27,2	21,6			5.58.25,58	
Aug.27	☉ N.L. M.........	18.25	2.10,3	28,0	16,3	21,4	21,9	16,0	13,774	-1.16,50	18.26. 2,43	G.
	☉ S.L.............	18.55	2.38,3	55,0	42,0	46,4	47,0	42,2			18.57.45,08	G.
	(*c*) ☽ N.L. M..........	52.45	3.47,5	63,0	50,7	57,1	56,5	52,0	11,152	-22,05 +5,64	52.48.37,96	G.
	☽ N.L. M.	52.45	3.47,5	63,0	50,7	57,1	56,5	52,0	11,055	-19,94 +2,82	52.48.37,25	G.
	☽ N.L. M..........	52.45	3.47,5	63,0	50,7	57,1	56,5	52,0	10,928	-17,14	52.48.37,23	G.
	☽ N.L. M..........	52.45	3.47,5	63,0	50,7	57,1	56,5	52,0	10,832	-15,08 -2,82	52.48.36,47	G.
	☽ N.L. M..........	52.45	3.47,5	63,0	50,7	57,1	56,5	52,0	10,772	-13,76 -5,64	52.48.34,97	G.
	δ Ursæ Min. R. M..	191. 0	2.17,3	27,1	18,9	24,1	23,4	21,5	13,884	-1.18,80	191. 1. 3,20	G.
	δ Ursæ Minoris...	302.15	1.53,7	61,8	57,2	57,0	58,4	54,7			302.16.57,08	G.
	(*d*) α Lyræ R. M......	143. 0	3.17,8	30,2	21,3	25,7	25,3	24,5	6,309	+1.19,20	143. 4.43,25	G.
	α Lyræ...........	350.10	3.10,8	22,3	16,8	16,5	19,9	12,6			350.13.16,40	G.
	(*e*) Venus S.L.......	9.55	0.41,9	54,1	46,0	50,8	49,5	45,9			9.55.48,02	G.
Aug.28	☉ S.L. M.........	19.20	0.25,8	38,8	30,0	33,5	34,0	29,8	14,868	-1.39,31	19.18.52,66	G.
	☉ N.L............	18.45	2. 3,0	14,9	8,0	8,3	10,2	4,6			18.47. 8,12	G.
	Uranus...........	37. 5	4.11,3	23,8	12,3	16,2	17,1	13,2			37. 9.15,55	G.
Aug.29	(*f*) ☽ N.L............	57.45	4.36,1	44,0	37,8	39,3	39,6	37,4		+1,56	57.49.40,48	G.
	☽ N.L. M........	57.45	4.36,1	44,0	37,8	39,3	39,6	37,4	9,935	+3,42 +0,78	57.49.43,13	G.
	☽ N.L. M........	57.45	4.36,1	44,0	37,8	39,3	39,6	37,4	9,827	+5,82	57.49.44,75	G.
	☽ N.L. M........	57.45	4.36,1	44,0	37,8	39,3	39,6	37,4	9,826	+5,90 -0,78	57.49.44,05	G.
	☽ N.L. M.... ...	57.45	4.36,1	44,0	37,8	39,3	39,6	37,4	9,900	+4,42 -1,56	57.49.41,79	G.
	α Cephei R. M....	166.15	4.20,0	29,2	24,0	25,8	23,0	21,5	7,673	+50,74	166.20.14,56	G.
	α Cephei.........	326.55	2.46,4	51,1	49,4	48,8	48,4	46,7			326.57.48,40	G.
	β Aquarii R. M...	98. 5	3.34,8	43,7	37,9	40,3	37,5	36,1	2,878	+2.30,75	98.11. 9,05	G.
	β Aquarii........	35. 5	1.49,8	58,8	54,4	54,9	51,7	51,8			35. 6.53,52	G.
	β Cephei R. M....	174.15	2. 9,0	18,0	14,0	16,8	11,3	11,9	10,557	-9,40	174.17. 4,05	G.
	β Cephei.........	319. 0	0.58,7	62,0	62,0	61,8	58,2	58,1			319. 1. 0,12	G.
	Uranus...........	37.10	0. 1,8	9,1	4,0	5,8	2,6	3,0			37.10. 4,38	G.

Runs taken Aug. 30, 1ʰ with the same result as the preceding. (Therm. 63°.)
Coincidences at the five wires taken Sept. 2, 22ʰ.

(*a*) Very misty. S.L. without dark glass.
(*b*) At the five wires, with the micrometer wire, the limb being very faint.
(*c*) At the five wires. All doubtful, so very faint.
(*d*) Good. (*e*) Badly defined and dancing.
(*f*) At the five wires. Broken, ill-defined, and waving. By calculation, the limb was fully illumined. The micrometer and fixed wires were too close.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer. Attach.	Thermometer. Free.	Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
61,58	46 . 33 . 34,10	30,004	55,6	55,0	1 . 1,07				84 . 21 . 43,45	Procyon R.
	46 . 33 . 36,70								84 . 21 . 46,05	Procyon.
	32 . 32 . 33,69	30,000	57,0	57,5	36,74	3,23	10,750	6,77	70 . 20 . 8,71	Venus.
	41 . 5 . 20,22	29,988	60,3	60,6	49,86	5,55		15 . 51,20	79 . 9 . 4,01	☉.
	41 . 37 . 1,99				50,80	5,61			79 . 9 . 4,26	☉.
	71 . 55 . 38,01	29,988	64,5	67,5					109 . 8 . 38,07	☽.
	71 . 55 . 34,37								109 . 8 . 34,43	☽.
	71 . 55 . 33,94				2 . 51,02	51 . 54,66		14 . 55,42	109 . 8 . 34,00	☽.
	71 . 55 . 32,96								109 . 8 . 33,02	☽.
	71 . 55 . 33,46								109 . 8 . 33,52	☽.
	29 . 19 . 25,30	30,020	62,6	65,4	31,86	1,98			67 . 7 . 3,46	Mars.
	41 . 47 . 2,15	30,024	66,4	71,0	50,11	5,63		15 . 51,60	79 . 50 . 46,51	☉.
	42 . 18 . 44,80				51,05	5,69			79 . 50 . 46,84	☉.
	76 . 9 . 37,68		69,0	72,0					113 . 21 . 57,79	☽.
	76 . 9 . 36,97								113 . 21 . 57,08	☽.
	76 . 9 . 36,95				3 . 42,91	53 . 36,09		15 . 5,01	113 . 21 . 57,06	☽.
	76 . 9 . 36,19								113 . 21 . 56,30	☽.
	76 . 9 . 34,69								113 . 21 . 54,80	☽.
60,14	− 34 . 22 . 2,92		66,5	68,8	38,53				3 . 24 . 26,83	δ Ursæ Min. R.
	− 34 . 22 . 3,20								3 . 24 . 26,55	δ Ursæ Minoris.
59,83	13 . 34 . 17,03				13,61				51 . 21 . 38,92	α Lyræ R.
	13 . 34 . 16,12								51 . 21 . 38,01	α Lyræ.
	33 . 16 . 47,74	29,968	69,5	71,2	36,74	3,26	10,700	6,25	71 . 4 . 23,25	Venus.
	42 . 39 . 51,58	29,944	72,7	73,6	51,28	5,73		15 . 51,90	80 . 11 . 53,51	☉.
	42 . 8 . 7,04				50,34	5,67			80 . 11 . 51,89	☉.
	60 . 30 . 14,47	29,660	64,4	62,7	1 . 39,27	0,39			98 . 19 . 1,63	Uranus.
	81 . 10 . 39,40	30,000	56,0	53,2					118 . 23 . 6,11	☽.
	81 . 10 . 42,05								118 . 23 . 8,76	☽.
	81 . 10 . 43,67				5 . 57,96	56 . 11,47		15 . 31,94	118 . 23 . 10,38	☽.
	81 . 10 . 42,97								118 . 23 . 9,68	☽.
	81 . 10 . 40,71								118 . 23 . 7,42	☽.
61,48	− 9 . 41 . 13,48	30,036	52,5	49,9	10,00				28 . 5 . 44,80	α Cephei R.
	− 9 . 41 . 12,68								28 . 5 . 45,60	α Cephei.
61,29	58 . 27 . 52,03				1 . 35,15				96 . 16 . 35,46	β Aquarii R.
	58 . 27 . 52,44								96 . 16 . 35,87	β Aquarii.
62,09	− 17 . 38 . 2,97				18,62				20 . 8 . 46,69	β Cephei R.
	− 17 . 38 . 0,96								20 . 8 . 48,70	β Cephei.
	60 . 31 . 3,30		52,2	48,6	1 . 43,50	0,39			98 . 19 . 54,69	Uranus.

Coincidence of Micrometer Wire with fixed Wire = $10^{r},104$ at middle wire. From Aug. 26 = $10^{r},095$, $10^{r},099$, $10^{r},106$, $10^{r},109$, $10^{r},112$ at the five wires.

One Micrometer Revolution = 20″,855.

Correction for Runs = − 0″,7.

Adopted Zenith Point = 336°. 39′. 0″,28. From Aug. 28 = 336°. 39′. 1″,08.

Assumed Co-latitude = 37°. 47′. 8″,28

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Aug. 29	Mars, center	6 . 10	2 . 56,4	65,9	64,1	60,1	60,3	56,7			6 . 13 . 0,52	G.
	Pollux R. M.	132 . 50	1 . 35,1	45,2	39,0	42,1	38,3	38,0	11,072	– 20,15	132 . 51 . 19,43	G.
	Pollux	0 . 25	1 . 38,4	45,4	45,0	42,4	42,2	39,0			0 . 26 . 42,03	G.
	(*a*) Venus S.L.	10 . 25	2 . 56,7	66,0	63,9	61,8	60,8	58,0			10 . 28 . 1,13	G.
Aug. 30	(*b*) ⊙ S.L. M.	20 . 0	3 . 8,0	20,4	14,1	16,2	14,4	9,1	15,015	– 1 . 42,38	20 . 1 . 31,24	G.
	⊙ N.L.	19 . 25	4 . 43,7	55,1	50,9	49,0	50,0	44,9			19 . 29 . 48,82	G.
	δ Ursæ Min. R. M.	191 . 0	2 . 15,0	28,0	18,3	22,3	18,8	18,0	13,690	– 1 . 14,75	191 . 1 . 5,27	G.
	δ Ursæ Minoris	302 . 15	1 . 55,8	65,0	57,5	60,5	55,7	57,6			302 . 16 . 58,63	G.
	(*c*) ☽ S.L.	58 . 25	4 . 28,3	40,0	31,0	33,0	34,0	31,8			58 . 29 . 32,92	G.
	☽ S.L. M.	58 . 25	4 . 28,3	40,0	31,0	33,0	34,0	31,8	10,228	– 2,49 + 0,66	58 . 29 . 31,09	G.
	☽ S.L. M	58 . 25	4 . 28,3	40,0	31,0	33,0	34,0	31,8	10,331	– 4,57 + 1,32	58 . 29 . 29,67	G.
	α Cephei R. M.	166 . 15	4 . 16,0	27,8	21,4	23,0	20,2	19,2	7,543	+ 53,45	166 . 20 . 14,62	G.
	α Cephei	326 . 55	2 . 45,4	52,2	48,4	48,2	45,8	47,0			326 . 57 . 47,77	G.
	β Aquarii R. M.	98 . 10	1 . 32,6	43,0	33,8	38,2	33,8	35,2	11,433	– 27,69	98 . 11 . 8,38	G.
	β Aquarii	35 . 5	1 . 48,9	60,0	53,0	53,1	51,5	51,3			35 . 6 . 52,92	G.
	β Cephei R. M.	174 . 15	2 . 17,4	28,9	21,3	24,4	21,2	21,7	10,990	– 18,43	174 . 17 . 4,00	G.
	β Cephei	319 . 0	0 . 57,0	63,3	59,0	60,3	55,9	58,2			319 . 0 . 58,93	G.
	Uranus	37 . 10	0 . 53,3	63,3	57,0	57,9	56,0	55,8			37 . 10 . 57,20	G.
Aug. 31	(*d*) ⊙ N.L.	19 . 50	1 . 15,0	28,2	19,9	23,3	21,6	18,9			19 . 51 . 21,03	G.
	⊙ S.L.	20 . 20	2 . 58,0	71,3	64,2	66,2	65,0	61,2			20 . 23 . 4,03	G.
	(*e*) ☽ S.L.	56 . 40	4 . 55,8	70,5	60,7	63,0	63,2	60,5		– 4,32	56 . 44 . 57,51	G.
	☽ S.L. M.	56 . 40	4 . 55,8	70,5	60,7	63,0	63,2	60,5	10,270	– 3,57 – 2,16	56 . 44 . 56,10	G.
	☽ S.L. M	56 . 40	4 . 55,8	70,5	60,7	63,0	63,2	60,5	10,373	– 5,57	56 . 44 . 56,26	G.
	☽ S.L. M	56 . 40	4 . 55,8	70,5	60,7	63,0	63,2	60,5	10,439	– 6,89 + 2,16	56 . 44 . 57,10	G.
	☽ S.L. M	56 . 40	4 . 55,8	70,5	60,7	63,0	63,2	60,5	10,514	– 8,38 + 4,32	56 . 44 . 57,77	G.
	α Aquilæ R. M	112 . 50	3 . 22,3	35,5	25,2	28,8	28,2	26,0	8,785	+ 27,56	112 . 53 . 54,91	G.
	α Aquilæ	20 . 20	3 . 59,0	72,0	64,0	65,7	67,6	62,5			20 . 24 . 4,77	G.
	β Aquilæ R. M.	110 . 25	2 . 23,5	36,0	25,0	30,4	28,8	27,0	9,515	+ 12,33	110 . 27 . 40,55	G.
	β Aquilæ	22 . 50	0 . 11,8	24,5	16,3	19,2	19,7	16,8			22 . 50 . 18,02	G.
	c Sagittarii	56 . 55	0 . 34,6	46,2	36,0	40,0	41,9	39,7			56 . 55 . 39,67	G.
	Uranus	37 . 10	1 . 48,0	59,5	52,4	54,2	54,3	52,0			37 . 11 . 53,23	G.
	(*f*) Venus S.L.	11 . 0	2 . 12,6	23,0	17,5	17,9	18,7	14,2			11 . 2 . 17,12	G.
Sept. 1	(*g*) ⊙ N.L. M.	20 . 10	3 . 15,2	28,8	20,2	22,3	22,4	18,3	11,014	– 18,94	20 . 13 . 1,96	G.
	⊙ S.L.	20 . 40	4 . 40,4	54,5	45,5	47,5	47,8	43,3			20 . 44 . 46,08	G.
	(*h*) α Ursæ Maj. R. M.	167 . 0	3 . 33,1	43,0	37,9	37,8	38,2	35,2	10,910	– 16,76	167 . 3 . 20,46	G.
	α Ursæ Majoris	326 . 10	4 . 39,8	47,9	43,6	43,9	45,2	39,8			326 . 14 . 42,95	G.
Sept. 2	Venus S.L.	11 . 35	3 . 33,9	43,4	39,1	39,0	39,8	36,2			11 . 38 . 38,23	G.
Sept. 3	⊙ N.L. M.	20 . 55	2 . 20,3	32,5	24,7	27,4	27,8	24,2	12,024	– 40,01	20 . 56 . 45,92	G.
	⊙ S.L.	21 . 25	3 . 27,9	39,7	31,4	34,2	33,8	30,8			21 . 28 . 32,65	G.
	(*i*) ☽ S.L.	41 . 5	4 . 8,0	18,3	12,8	14,0	10,9	11,2		– 9,92	41 . 9 . 2,23	G.
	☽ S.L. M	41 . 5	4 . 8,0	18,3	12,8	14,0	10,9	11,2	10,290	– 3,99 – 4,96	41 . 9 . 3,20	G.
	☽ S.L. M	41 . 5	4 . 8,0	18,8	12,8	14,0	10,9	11,2	11,020	– 18,94 + 9,92	41 . 9 . 3,13	G.

Runs taken Sept. 2, 22h. (Therm. 60°.)

(*a*) Dancing.

(*b*) Badly defined limbs.

(*c*) At the 3rd, 4th, and 5th wires. The limb was in a very unfavorable state for observing.

(*d*) Serrated and undulating. N.L. came on fixed wire.

(*e*) At the five wires.

(*f*) Cloudy.

(*g*) Ill-defined.

(*h*) Clouds passing.

(*i*) At 1st, 2nd, and 5th wires. Very cloudy and doubtful.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	29 . 33 . 59,44	30,058	55,0	54,9	32,91	2,01			67 . 21 . 38,62	Mars.
60,73	23 . 47 . 41,65				25,58				61 . 35 . 15,51	Pollux R.
	23 . 47 . 40,95								61 . 35 . 14,81	Pollux.
	33 . 49 . 0,05		57,0	57,2	38,67	3,29	10,702	6,27	71 . 36 . 37,44	Venus.
	43 . 22 . 30,16	30,056	60,3	60,5	54,15	5,81		15 . 52,30	80 . 54 . 34,48	☉.
	42 . 50 . 47,74				53,16	5,75			80 . 54 . 35,73	☉.
61,95	− 34 . 22 . 4,19	30,060	57,6	56,0	39,57				3 . 24 . 24,52	δ Ursæ Min. R.
	− 34 . 22 . 2,45								3 . 24 . 26,26	δ Ursæ Minoris.
	81 . 50 . 31,84								118 . 30 . 59,01	☽.
	81 . 50 . 30,01				6 . 23,39	57 . 16,38		15 . 48,12	118 . 30 . 57,18	☽.
	81 . 50 . 28,59								118 . 30 . 55,76	☽.
61,20	− 9 . 41 . 13,54	30,068	54,8	53,0	9,94				28 . 5 . 44,80	α Cephei R.
	− 9 . 41 . 13,31								28 . 5 . 45,03	α Cephei.
60,65	58 . 27 . 52,70				1 . 34,65				96 . 16 . 35,63	β Aquarii R.
	58 . 27 . 51,84								96 . 16 . 34,77	β Aquarii.
61,47	− 17 . 38 . 2,92				18,52				20 . 8 . 46,84	β Cephei R.
	− 17 . 38 . 2,15								20 . 8 . 47,61	β Cephei.
	60 . 31 . 56,12		53,6	51,7	1 . 43,02	0,39			98 . 20 . 47,03	Uranus.
	43 . 12 . 19,95	30,068	63,0	64,4	53,43	5,79		15 . 52,60	81 . 16 . 8,47	☉.
	43 . 44 . 2,95				54,42	5,85			81 . 16 . 7,20	☉.
	80 . 5 . 56,43	30,024	60,0	58,5					116 . 44 . 19,10	☽.
	80 . 5 . 55,02								116 . 44 . 17,69	☽.
	80 . 5 . 55,18				5 . 17,76	57 . 58,82		16 . 4,55	116 . 44 . 17,85	☽.
	80 . 5 . 56,02								116 . 44 . 18,69	☽.
	80 . 5 . 56,69								116 . 44 . 19,36	☽.
59,84	43 . 45 . 6,17				55,03				81 . 33 . 9,48	α Aquilæ R.
	43 . 45 . 3,69								81 . 33 . 7,00	α Aquilæ.
59,29	46 . 11 . 20,53				59,90				83 . 59 . 28,71	β Aquilæ R.
	46 . 11 . 16,94								83 . 59 . 25,12	β Aquilæ.
	80 . 16 . 38,59				5 . 23,30				118 . 9 . 10,17	c Sagittarii.
	60 . 32 . 52,15	29,986	55,0	51,6	1 . 42,82	0,39			98 . 21 . 42,86	Uranus.
	34 . 23 . 16,04	30,005	60,8	60,6	39,17	3,31	10,648	5,70	72 . 10 . 54,48	Venus.
	43 . 34 . 0,88	30,000	62,4	63,2	54,12	5,83		15 . 52,82	81 . 37 . 50,25	☉.
	44 . 5 . 45,00				55,13	5,89			81 . 37 . 49,72	☉.
61,71	− 10 . 24 . 19,38				10,46				27 . 22 . 38,44	α Ursæ Maj. R.
	− 10 . 24 . 18,13								27 . 22 . 39,69	α Ursæ Majoris.
	34 . 59 . 37,15	30,086	61,6	61,6	40,09	3,34	10,718	6,44	72 . 47 . 15,74	Venus.
	44 . 17 . 44,84	30,070	63,8	64,2	55,52	5,91		15 . 53,30	82 . 21 . 36,03	☉.
	44 . 49 . 31,57				56,56	5,97			82 . 21 . 37,14	☉.
	64 . 30 . 1,15	29,982	55,0	52,4					101 . 7 . 29,47	☽.
	64 . 30 . 2,12				2 . 1,33	55 . 1,23		16 . 40,06	101 . 7 . 30,44	☽.
	64 . 30 . 2,05								101 . 7 . 30,37	☽.

Coincidence of Micrometer Wire with fixed Wire = $10^{r},095$, $10^{r},099$, $10^{r},106$, $10^{r},109$, $10^{r},112$ at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = − 0″,7. From Aug. 31 = − 2″,7.
Adopted Zenith point = 336°. 39′. 1″,08.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Sept. 3	(*a*) Uranus............	37 . 10	4 . 32,5	41,8	35,2	35,9	34,8	35,0		– 0,11	37 . 14 . 35,36	G.
	α Pegasi R. M.	118 . 45	2 . 22,1	33,3	23,5	25,5	22,9	23,6	10,479	– 7,78	118 . 47 . 17,15	G.
	α Pegasi	14 . 30	0 . 38,0	44,8	42,3	41,8	39,8	40,3			14 . 30 . 41,10	G.
	φ Aquarii.........	35 . 45	0 . 7,2	14,2	10,0	11,6	8,8	10,8			35 . 45 . 10,42	G.
	κ^1 Piscium.........	28 . 25	3 . 2,8	10,4	6,4	7,3	4,8	4,8			28 . 28 . 5,80	G.
	Venus S.L.........	11 . 55	2 . 29,7	39,7	33,8	33,8	35,1	31,4			11 . 57 . 33,68	G.
Sept. 4	(*b*) ⊙ S.L. M.........	21 . 50	1 . 22,7	33,3	26,0	28,1	28,0	25,1	12,500	– 49,93	21 . 50 . 37,14	G.
	⊙ N.L.	21 . 15	3 . 46,8	60,2	52,0	53,4	53,0	48,8			21 . 18 . 52,02	G.
	Uranus............	37 . 15	0 . 30,9	39,9	30,3	35,3	33,8	33,8			37 . 15 . 33,95	G.
	(*c*) ☽ N.L.............	33 . 10	2 . 22,3	31,9	23,2	26,2	24,6	25,5		– 10,36	33 . 12 . 15,04	G.
	☽ N.L. M.........	33 . 10	2 . 22,3	31,9	23,2	26,2	24,6	25,5	10,328	– 4,78 – 5,18	33 . 12 . 15,44	G.
	☽ N.L. M.........	33 . 10	2 . 22,3	31,9	23,2	26,2	24,6	25,5	10,610	– 10,51	33 . 12 . 14,89	G.
	(*d*) Mars, center.......	6 . 45	1 . 13,7	23,9	18,3	18,2	19,1	15,2			6 . 46 . 17,95	G.
Sept. 5	(*e*) ⊙ N.L. M.	21 . 40	1 . 17,2	29,2	19,8	23,0	21,7	19,2	10,938	– 17,35	21 . 41 . 4,22	G.
Sept. 6	(*f*) ⊙ S.L. M.	22 . 35	0 . 21,3	32,8	24,0	27,7	25,0	25,8	10,914	– 16,85	22 . 35 . 9,22	G.
	(*d*) Venus S.L.........	12 . 55	2 . 6,9	15,3	11,8	10,5	10,5	7,0			12 . 57 . 10,13	G.
Sept. 7	⊙ N.L. M.	22 . 25	1 . 18,8	29,8	22,7	25,3	23,8	21,7	11,943	– 38,32	22 . 25 . 45,23	G.
	⊙ S.L............	22 . 55	2 . 28,8	40,4	32,3	34,8	33,8	31,7			22 . 57 . 33,40	G.
Sept. 8	*α* Cygni R. M.	149 . 5	4 . 15,4	26,9	20,9	22,2	19,9	19,2	11,682	– 32,88	149 . 8 . 47,64	G.
	α Cygni	344 . 5	4 . 11,7	18,8	17,8	15,0	18,2	11,0			344 . 9 . 15,18	G.
	Uranus............	37 . 15	4 . 0,8	14,1	6,7	9,7	6,6	4,8			37 . 19 . 6,90	G.
	(*g*) *α* Pegasi R. M.....	118 . 45	2 . 18,0	28,7	20,6	24,2	19,4	21,9	10,210	– 2,17	118 . 47 . 19,83	G.
	α Pegasi	14 . 30	0 . 37,7	47,0	43,4	44,0	42,8	39,8			14 . 30 . 42,42	G.
Sept. 10	(*h*) ⊙ S.L. M.........	24 . 5	1 . 16,7	25,2	21,7	21,0	21,0	19,3	13,016	–1 . 0,69	24 . 5 . 20,06	G.
	⊙ N.L............	23 . 30	3 . 29,0	39,0	34,1	33,6	34,1	31,5			23 . 33 . 33,35	G.
	(*i*) Uranus............	37 . 20	0 . 47,0	56,8	52,1	53,3	52,9	51,4		– 0,11	37 . 20 . 52,09	G.
	(*k*) ☽ N.L..	0 . 35	1 . 30,2	36,5	36,3	33,4	34,5	32,4		– 1,68	0 . 36 . 32,12	G.
	☽ N.L. M..........	0 . 35	1 . 30,2	36,5	36,3	33,4	34,5	32,4	10,030	+ 1,44 – 0,84	0 . 36 . 34,40	G.
	☽ N.L. M..........	0 . 35	1 . 30,2	36,5	36,3	33,4	34,5	32,4	10,160	– 1,12	0 . 36 . 32,68	G.
	Pollux R. M.......	132 . 50	1 . 35,3	45,5	39,3	42,3	39,0	38,5	11,109	– 20,92	132 . 51 . 18,98	G.
	Pollux............	0 . 25	1 . 39,3	45,6	45,8	43,7	43,3	40,8			0 . 26 . 43,00	G.
	(*l*) Mars, center	7 . 20	4 . 43,5	51,3	49,8	46,3	47,0	43,5		+ 0,07	7 . 24 . 46,72	G.
	Venus S.L........	14 . 20	2 . 51,0	61,1	56,8	56,8	56,0	52,2			14 . 22 . 55,50	G.
Sept. 11	(*m*) ⊙ N.L. M.........	23 . 55	1 . 23,0	37,2	28,0	31,2	28,5	27,3	10,600	– 10,30	23 . 56 . 18,82	G.
	⊙ S.L............	24 . 25	3 . 2,8	17,1	8,8	10,4	8,9	5,0			24 . 28 . 8,67	G.
	Polaris SP. R. M. .	195 . 55	4 . 21,2	29,7	24,7	25,3	24,3	23,1	12,675	– 53,58	195 . 58 . 30,90	G.
	Polaris SP.........	297 . 15	4 . 28,4	38,0	31,8	31,6	31,5	29,2			297 . 19 . 31,52	G.
	δ Ursæ Min. R. M.	191 . 0	2 . 18,3	29,2	22,5	25,3	25,3	21,8	13,869	–1 . 18,48	191 . 1 . 5,12	G.
	δ Ursæ Minoris...	302 . 15	1 . 52,8	62,1	56,6	58,8	55,8	55,8			302 . 16 . 56,88	G.
	α Lyræ R. M......	143 . 0	3 . 16,3	28,4	21,0	22,3	20,9	21,4	6,058	+1 . 24,42	143 . 4 . 45,95	G.
	α Lyræ	350 . 10	3 . 10,3	19,9	15,2	15,8	14,3	11,8			350 . 13 . 14,38	G.
	Uranus............	37 . 20	1 . 39,8	50,3	42,2	44,5	44,3	43,3			37 . 21 . 43,98	G.
	Venus S.L........	14 . 45	0 . 21,2	31,4	24,6	27,9	28,0	24,7			14 . 45 . 26,28	G.
Sept. 12	⊙ S.L. M.........	24 . 50	1 . 12,9	26,0	18,2	19,8	20,4	17,0	10,979	– 18,20	24 . 51 . 0,78	G.
	⊙ N.L............	24 . 15	4 . 5,5	20,2	12,4	13,5	13,0	8,8			24 . 19 . 12,02	G.

Coincidence at the middle wire taken Sept. 10, 1^h, with the same result as the preceding.
Runs taken Sept. 10, 1^h. (Therm. 57°,0.)

(*a*) At 5th wire. No sensible correction for change of N.P.D.
(*b*) Misty and faint.
(*c*) At the 1st, 2nd, and 3rd wires.
(*d*) Very cloudy.
(*e*) Without dark glass.
(*f*) The other limb clouded.
(*g*) Too near the fixed wire to admit of a good bisection.
(*h*) Very bad definition and much waving.
(*i*) At the 5th wire. Correction for change of N.P.D. = – 0″,02.
(*k*) At the 1st, 2nd, and 3rd wires. Slow change of N.P.D. and consequently the micrometer and fixed wires too close.
(*l*) At the 5th wire. Correction for change of N.P.D. = – 0″,17.
(*m*) Misty limbs.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	60 . 35 . 34,28	29,982	55,0	52,4	1 . 42,82	0,39			98 . 24 . 24,99	Uranus.
59,13	37 . 51 . 43,93				45,19				75 . 39 . 37,40	α Pegasi R.
	37 . 51 . 40,02								75 . 39 . 33,49	α Pegasi.
	59 . 6 . 9,34				1 . 36,89				96 . 54 . 54,51	ϕ Aquarii.
	51 . 49 . 4,72	29,972	54,8	52,1	1 . 13,85				89 . 37 . 26,85	κ^1 Piscium.
	35 . 18 . 32,60	29,894	63,6	61,5	40,31	3,36	10,734	6,61	73 . 6 . 11,22	Venus.
	45 . 11 . 36,06	29,860	63,8	64,2	56,89	6,01		15 . 53,50	82 . 43 . 41,72	☉.
	44 . 39 . 50,94				55,86	5,95			82 . 43 . 42,63	☉.
	60 . 36 . 32,87	29,644	58,7	56,4	1 . 40,91	0,39			98 . 25 . 21,67	Uranus.
	56 . 33 . 13,96	29,618	58,0	56,5					93 . 47 . 33,63	☽.
	56 . 33 . 14,36				1 . 26,04	50 . 57,04		16 . 42,39	93 . 47 . 34,03	☽.
	56 . 33 . 13,81								93 . 47 . 33,48	☽.
	30 . 7 . 16,87	29,526	62,0	63,1	32,52	2,08			67 . 54 . 55,59	Mars.
	45 . 2 . 3,14	29,504	66,8	68,0	55,48	5,99		15 . 53,70	83 . 5 . 54,61	☉.
	45 . 56 . 8,14	29,174	63,8	63,5	57,12	6,09		15 . 54,00	83 . 28 . 13,45	☉.
	36 . 18 . 9,05	29,264	66,5	64,3	40,70	3,41	10,709	6,36	74 . 5 . 48,26	Venus.
	45 . 46 . 44,15	29,266	65,7	66,6	56,64	6,07		15 . 54,20	83 . 50 . 37,20	☉.
	46 . 18 . 32,32				57,70	6,13			83 . 50 . 37,97	☉.
1,41	7 . 30 . 13,44	29,888	52,7	48,4	7,70				45 . 17 . 29,42	α Cygni R.
	7 . 30 . 14,10								45 . 17 . 30,08	α Cygni.
	60 . 40 . 5,82	29,924	48,4	45,6	1 . 44,40	0,39			98 . 28 . 58,11	Uranus.
1,13	37 . 51 . 41,25				45,74				75 . 39 . 35,27	α Pegasi R.
	37 . 51 . 41,34								75 . 39 . 35,36	α Pegasi.
	47 . 26 . 18,98	30,322	57,2	56,7	1 . 3,42	6,25		15 . 55,00	84 . 58 . 29,43	☉.
	46 . 54 . 32,27				1 . 2,25	6,20			84 . 58 . 31,60	☉.
	60 . 41 . 51,01	30,404	51,6	49,3	1 . 45,38	0,39			98 . 30 . 44,28	Uranus.
	23 . 57 . 31,04	30,430	50,7	43,2					61 . 37 . 40,87	☽.
	23 . 57 . 33,32				26,73	22 . 59,40		15 . 34,22	61 . 37 . 43,15	☽.
	23 . 57 . 31,60								61 . 37 . 41,43	☽.
0,99	23 . 47 . 42,10	30,444	49,0	48,4	26,25				61 . 35 . 16,63	Pollux R.
	23 . 47 . 41,92								61 . 35 . 16,45	Pollux.
	30 . 45 . 45,64	30,450	50,5	51,6	35,21	2,15			68 . 33 . 26,98	Mars.
	37 . 43 . 54,42	30,484	59,3	56,0	45,40	3,48	10,654	5,79	75 . 31 . 38,83	Venus.
	47 . 17 . 17,74	30,450	57,2	59,5	1 . 3,00	6,24		15 . 55,20	85 . 21 . 17,98	☉.
	47 . 49 . 7,59				1 . 4,17	6,29			85 . 21 . 18,55	☉.
1,21	− 39 . 19 . 29,82		58,2	60,7	47,56				− 1 . 33 . 9,10	Polaris SP. R.
	− 39 . 19 . 29,56								− 1 . 33 . 8,84	Polaris SP.
1,00	− 34 . 22 . 4,04	30,438	56,8	57,7	39,93				3 . 24 . 24,31	δ Ursæ Min. R.
	− 34 . 22 . 4,20								3 . 24 . 24,15	δ Ursæ Minoris.
0,17	13 . 34 . 15,13				14,10				51 . 21 . 37,51	α Lyræ R.
	13 . 34 . 13,30								51 . 21 . 35,68	α Lyræ.
	60 . 42 . 42,90	30,418	51,8	48,8	1 . 45,60	0,39			98 . 31 . 36,39	Uranus.
	38 . 6 . 25,20	30,400	61,0	59,5	45,57	3,50	10,685	6,11	75 . 54 . 9,44	Venus.
	48 . 11 . 59,70	30,374	60,4	61,5	1 . 4,62	6,33		15 . 55,40	85 . 44 . 10,87	☉.
	47 . 40 . 10,94				1 . 3,43	6,28			85 . 44 . 11,77	☉.

Coincidence of Micrometer Wire with fixed Wire = 10^{r},095, 10^{r},099, 10^{r},106, 10^{r},109, 10^{r},112 at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = − 2″,7. From Sept. 8 = − 1″,6.
Adopted Zenith Point = 336°. 39′. 1″,08.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes. A	B	C	D	E	F	Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Sept. 12	Uranus...........	37 . 20	2 . 35,5	47,5	36,8	40,8	42,5	39,0			37 . 22 . 40,20	G.
	(*a*) α Pegasi R.........	118 . 45	2 . 16,4	29,8	17,6	22,7	22,8	18,8			118 . 47 . 21,22	G.
	α Pegasi.........	14 . 30	0 . 37,3	44,0	38,8	41,5	41,2	39,9			14 . 30 . 40,42	G.
	γ Cephei R. M....	181 . 10	0 . 22,6	31,8	24,8	30,8	26,5	28,1	12,515	− 50,24	181 . 9 . 37,18	G.
	γ Cephei.........	312 . 5	3 . 23,0	27,5	22,5	24,3	22,3	23,8			312 . 8 . 23,72	G.
Sept. 13	(*b*) β Cephei R. M...	174 . 15	2 . 12,0	23,4	16,6	18,8	18,2	16,5	10,398	− 6,03 − 0,41	174 . 17 . 11,03	G.
	β Cephei.........	319 . 0	0 . 48,6	57,9	50,8	53,9	53,3	50,3		+ 1,64	319 . 0 . 54,06	G.
	υ Ursæ Maj. SP. R. M.........	224 . 35	2 . 16,3	29,2	18,1	21,8	23,4	19,7	13,604	−1 . 12,96	224 . 36 . 8,32	G.
	υ Ursæ Majoris SP.	268 . 40	1 . 49,0	61,5	52,7	55,8	54,0	53,0			268 . 41 . 54,23	G.
	Uranus...........	37 . 20	3 . 27,6	41,0	30,3	31,8	34,1	30,8			37 . 23 . 32,42	G.
	α Pegasi R. M.....	118 . 45	2 . 17,0	30,0	18,4	22,4	22,0	18,7	10,155	− 1,02	118 . 47 . 20,28	G.
	α Pegasi..........	14 . 30	0 . 37,0	46,0	39,7	41,0	42,5	38,8			14 . 30 . 40,80	G.
Sept. 15	⊙ N.L. M........	25 . 25	3 . 17,2	28,8	21,8	23,3	24,2	20,8	10,420	− 6,55	25 . 28 . 15,95	G.
	⊙ S.L............	26 . 0	0 . 0,7	12,0	5,2	7,9	7,0	4,3			26 . 0 . 6,18	G.
	δ Ursæ Min. R. M.	191 . 0	2 . 7,7	18,8	13,0	15,4	14,2	12,8	13,321	−1 . 7,05	191 . 1 . 6,48	G.
	δ Ursæ Minoris...	302 . 15	1 . 51,8	61,0	55,2	56,2	53,4	53,5			302 . 16 . 55,08	G.
	α Lyræ R. M......	143 . 0	3 . 20,8	33,2	25,4	26,9	26,0	25,8	6,290	+1 . 19,59	143 . 4 . 45,76	G.
	α Lyræ...........	350 . 10	3 . 10,3	20,9	15,0	15,7	15,2	11,3			350 . 13 . 14,57	G.
	β Lyræ R. M.....	137 . 35	3 . 18,1	30,4	22,0	25,0	24,2	22,9	13,026	−1 . 0,90	137 . 37 . 22,68	G.
	β Lyræ...........	355 . 40	0 . 32,8	41,9	38,3	38,6	39,0	36,0			355 . 40 . 37,73	G.
	β Aquarii R. M...	98 . 10	1 . 17,8	28,8	20,4	23,8	21,4	21,1	10,826	− 15,02	98 . 11 . 7,13	G.
	β Aquarii.........	35 . 5	1 . 49,2	60,9	53,8	55,1	53,9	53,0			35 . 6 . 54,22	G.
	Uranus............	37 . 25	0 . 13,1	25,0	15,8	20,4	17,0	18,2			37 . 25 . 18,23	G.
Sept. 19	(*c*) Venus S.L........	17 . 55	3 . 59,5	69,7	66,2	63,4	65,8	60,5			17 . 59 . 3,93	G.
Sept. 20	α Lyræ R. M......	143 . 0	3 . 19,0	32,0	23,5	25,0	26,1	23,5	6,158	+1 . 22,36	143 . 4 . 47,01	G.
	α Lyræ...........	350 . 10	3 . 11,8	19,8	15,1	14,7	15,8	10,8			350 . 13 . 14,47	G.
	β Aquarii R. M...	98 . 10	1 . 34,8	47,0	36,1	41,1	38,9	36,9	11,602	− 31,18	98 . 11 . 7,85	G.
	β Aquarii.........	35 . 5	1 . 48,8	60,2	52,2	53,2	55,3	52,0			35 . 6 . 53,50	G.
	β Cephei R. M....	174 . 15	1 . 52,8	63,9	58,0	61,2	60,8	57,3	9,538	+ 11,87	174 . 17 . 10,75	G.
	β Cephei.........	319 . 0	0 . 50,4	56,3	53,2	53,8	52,4	52,1			319 . 0 . 52,98	G.
	υ Ursæ Maj. SP. R. M.........	224 . 35	1 . 28,8	39,0	29,2	33,8	33,8	33,3	11,158	− 21,92	224 . 36 . 10,98	G.
	υ Ursæ Maj. SP...	268 . 40	1 . 50,6	59,5	52,6	55,4	52,8	52,9			268 . 41 . 53,85	G.
	Uranus............	37 . 25	4 . 28,7	40,6	31,3	32,2	35,0	31,2			37 . 29 . 32,90	G.
	Mars, center......	8 . 35	4 . 8,0	17,8	14,7	12,7	12,4	8,2			8 . 39 . 12,05	G.
	(*d*) Venus S.L........	18 . 20	4 . 44,4	55,2	51,0	47,6	49,8	44,5			18 . 24 . 48,47	G.
Sept. 21	(*e*) ⊙ N.L. M........	27 . 45	3 . 20,6	35,0	22,0	29,0	24,5	23,7	11,888	− 37,15	27 . 47 . 48,45	G.
	⊙ S.L............	28 . 15	4 . 37,2	52,2	40,2	45,5	41,5	40,1			28 . 19 . 42,50	G.
	(*f*) α Lyræ R. M.....	143 . 0	3 . 18,1	29,8	22,2	24,2	24,2	22,7	6,122	+1 . 23,24 − 0,48	143 . 4 . 46,09	G.
	α Lyræ...........	350 . 10	3 . 9,8	20,2	15,6	14,9	14,9	11,1		+ 1,08	350 . 13 . 15,30	G.
	β Lyræ R. M.....	137 . 35	3 . 12,3	24,9	15,1	18,5	17,2	15,9	12,714	− 54,37	137 . 37 . 22,75	G.
	β Lyræ...........	355 . 40	0 . 34,0	42,1	37,8	37,9	37,9	35,4			355 . 40 . 37,48	G.
	α Cephei R. M....	166 . 15	4 . 14,0	25,3	18,9	19,8	17,2	16,6	7,075	+1 . 3,24	166 . 20 . 21,62	G.
	α Cephei.........	326 . 55	2 . 39,5	45,9	41,0	41,8	40,7	41,3			326 . 57 . 41,53	G.
	β Aquarii R. M...	98 . 10	1 . 35,8	45,8	37,0	41,0	36,6	37,7	11,602	− 31,18	98 . 11 . 7,70	G.
	β Aquarii.........	35 . 5	1 . 51,6	61,3	55,0	55,1	54,4	54,2			35 . 6 . 55,15	G.

Coincidence at the middle wire and Runs taken Sept. 24, 0h. (Therm. 56°,5.)

(*a*) Accidentally on the fixed wire.

(*b*) At the 4th and 5th wires. Before this observation Microscope B was slightly struck by the hand; apparently no decided effect.

(*c*) Very faint.

(*d*) Very faint and doubtful.

(*e*) The Sun had been shining on the Circle a short time.

(*f*) At the 5th wire and comb.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N.P.D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	60.43.39,12	30,280	56,4	54,8	1.43,91	0,39			98.32.30,92	Uranus.
0,83	37.51.39,86				45,42				75.39.33,56	α Pegasi R.
	37.51.39,34								75.39.33,04	α Pegasi.
0,45	−24.30.36,10				26,65				13.16. 5,53	γ Cephei R.
	−24.30.37,36								13.16. 4,27	γ Cephei.
2,54	−17.38. 9,95	30,116	57,6	56,4	18,43				20. 8.39,90	β Cephei R.
	−17.38. 7,02								20. 8.42,83	β Cephei.
1,28	−67.57. 7,24				2.22,07				−30.12.21,03	υ Urs.Maj.SP.R.
	−67.57. 6,85								−30.12.20,64	υ Ursæ Maj. SP.
	60.44.31,34	30,110	55,5	53,0	1.43,76	0,39			98.33.22,99	Uranus.
0,54	37.51.40,80				45,33				75.39.34,41	α Pegasi R.
	37.51.39,72								75.39.33,33	α Pegasi.
	48.49.14,87	30,012	59,7	62,7	1. 5,10	6,40		15.56,20	86.53.18,05	☉.
	49.21. 5,10				1. 6,32	6,45			86.53.17,05	☉.
0,78	−34.22. 5,40	29,996	61,0	60,5	39,14				3.24.23,74	δ Ursæ Min. R.
	−34.22. 6,00								3.24.23,14	δ Ursæ Minoris.
0,17	13.34.15,32				13,82				51.21.37,42	α Lyræ R.
	13.34.13,49								51.21.35,59	α Lyræ.
0,21	19. 1.38,40				19,75				56.49. 6,43	β Lyræ R.
	19. 1.36,65								56.49. 4,68	β Lyræ.
0,68	58.27.53,95	30,000	58,6	56,7	1.33,72				96.16.35,95	β Aquarii R.
	58.27.53,14								96.16.35,14	β Aquarii.
	60.46.17,15		57,5	55,4	1.43,00	0,39			98.35. 8,04	Uranus.
	41.20. 2,85	29,774	59,4	59,7	50,02	3,66	10,662	5,86	79. 7.51,63	Venus.
0,74	13.34.14,07	29,758	58,4	57,2	13,80				51.21.36,15	α Lyræ R.
	13.34.13,39								51.21.35,47	α Lyræ.
0,68	58.27.53,23		55,0	51,5	1.33,97				96.16.35,48	β Aquarii R.
	58.27.52,42								96.16.34,67	β Aquarii.
1,87	−17.38. 9,67				18,39				20. 8.40,22	β Cephei R.
	−17.38. 8,10								20. 8.41,79	β Cephei.
2,42	−67.57. 9,90				2.21,81				−30.12.23,43	υ Ur. Maj.SP. R.
	−67.57. 7,23								−30.12.20,76	υ Urs. Maj. SP.
	60.50.31,82	29,754	52,6	49,6	1.43,68	0,39			98.39.23,39	Uranus.
	32. 0.10,97	29,752	54,0	53,2	36,00	2,30			69.47.52,95	Mars.
	41.45.47,39	29,788	56,7	57,4	51,04	3,68	10,638	5,61	79.33.37,42	Venus.
	51. 8.47,37	29,768	58,4	60,3	1.10,44	6,63		15.57,80	89.12.57,26	☉.
	51.40.41,42				1.11,78	6,68			89.12.57,00	☉.
0,70	13.34.14,99	29,812	57,0	55,0	13,89				51.21.37,16	α Lyræ R.
	13.34.14,22								51.21.36,39	α Lyræ.
0,12	19. 1.38,33				19,84				56.49. 6,45	β Lyræ R.
	19. 1.36,40								56.49. 4,52	β Lyræ.
1,58	−9.41.20,54	29,824	54,4	52,2	9,88				28. 5.37,86	α Cephei R.
	−9.41.19,55								28. 5.38,85	α Cephei.
1,43	58.27.53,38				1.34,04				96.16.35,70	β Aquarii R.
	58.27.54,07								96.16.36,39	β Aquarii.

Coincidence of Micrometer Wire with fixed Wire = 10^r,106, at middle Wire. From Sept. 19 = 10^r,107.
One Micrometer Revolution = 20″,855.
Correction for Runs = −1″,6. From Sept. 19 = 1″,8.
Adopted Zenith Point = 336°. 39′. 1″,08.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° '	' "	"	"	"	"	"	r. h. m. s.	' "	° ' "	
Sept. 21	υ Ur. Maj. SP. R. M.	224 . 35	1 . 28,0	38,6	27,8	32,7	30,3	31,2	11,017	- 18,98	224 . 36 . 12,37	G.
	(*a*) υ Ursæ Majoris SP.	268 . 40	1 . 49,3	59,0	51,1	54,5	50,7	52,8		- 0,26	268 . 41 . 52,52	G.
	Uranus............	37 . 30	0 . 20,3	28,9	22,4	23,8	22,8	24,0			37 . 30 . 23,68	G.
	Mars, center......	8 . 45	2 . 14,2	22,0	20,2	17,0	16,4	14,6			8 . 47 . 17,27	G.
	Venus S.L........	18 . 50	0 . 45,8	55,4	52,2	50,0	49,7	45,9			18 . 50 . 49,78	G.
Sept. 22	⊙ S.L. M.........	28 . 40	3 . 25,8	37,8	30,8	32,5	31,1	27,5	11,281	- 24,49	28 . 43 . 6,21	G.
	⊙ N.L.	28 . 10	1 . 5,5	17,0	11,8	12,0	10,0	8,0			28 . 11 . 10,65	G.
Sept. 26	(*b*) ☽ S.L............	58 . 40	1 . 56,5	67,2	60,1	62,5	60,0	60,8		- 0,14	58 . 42 . 0,91	G.
	☽ S.L. M.........	58 . 40	1 . 56,5	67,2	60,1	62,5	60,0	60,8	10,175	- 1,40 - 0,07	58 . 41 . 59,58	G.
	☽ S.L. M.........	58 . 40	1 . 56,5	67,2	60,1	62,5	60,0	60,8	10,210	- 1,98 + 0,07	58 . 41 . 59,14	G.
Sept. 27	(*c*) Uranus............	37 . 35	0 . 8,1	16,8	11,8	13,8	11,6	11,8		- 0,11	37 . 35 . 12,19	G.
	α Ursæ Maj. SP. R. M.........	221 . 45	2 . 11,8	22,4	16,0	20,0	19,0	16,7	11,285	- 24,56	221 . 46 . 52,94	G.
	α Ursæ Major. SP.	271 . 30	1 . 6,8	17,0	10,4	13,7	10,2	10,8			271 . 31 . 11,40	G.
	γ Cephei R. M....	181 . 10	0 . 30,8	42,2	35,7	39,2	37,7	36,4	12,558	- 51,09	181 . 9 . 45,88	G.
	γ Cephei.........	312 . 5	3 . 17,8	24,8	19,4	20,0	17,3	18,2			312 . 8 . 19,37	G.
	γ Ursæ Maj. SP. R. M..........	229 . 45	3 . 8,3	19,0	11,5	14,0	12,3	12,1	12,298	- 45,68	229 . 47 . 26,99	G.
	γ Ursæ Major. SP.	263 . 30	0 . 34,2	43,3	36,0	39,2	36,2	38,7			263 . 30 . 37,90	G.
	Mars, center......	9 . 35	2 . 48,7	54,6	54,2	52,4	52,9	50,0			9 . 37 . 51,95	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 18,0	28,0	23,2	24,0	23,8	21,5	10,612	- 10,51	167 . 3 . 12,36	G.
	α Ursæ Majoris...	362 . 10	4 . 49,3	55,0	53,4	52,4	51,5	49,3			326 . 14 . 51,50	G.
	Venus S.L........	21 . 30	2 . 35,3	43,8	38,4	39,8	39,0	37,4			21 . 32 . 38,78	G.
	Mercury, center...	24 . 55	2 . 19,8	28,2	24,7	24,8	24,5	21,7			24 . 57 . 23,80	G.
Sept. 28	⊙ N.L. M........	30 . 30	1 . 15,8	25,9	19,9	21,4	21,0	18,8	9,536	+ 11,93	30 . 31 . 32,31	G.
	⊙ S.L............	31 . 0	3 . 28,8	41,3	33,0	34,2	33,3	31,9			31 . 3 . 33,52	G.
	Polaris SP. R. M..	195 . 55	4 . 25,0	32,6	27,4	27,7	28,8	24,7	12,848	- 57,14	195 . 58 . 30,28	G.
	Polaris SP.........	297 . 15	4 . 35,0	42,6	37,0	36,4	37,1	35,2			297 . 19 . 36,93	G.
	Arcturus R. M....	124 . 25	4 . 28,0	39,0	30,3	32,9	32,8	29,3	13,474	- 1 . 10,21	124 . 28 . 21,56	G.
	Arcturus.........	8 . 45	4 . 36,3	45,0	41,4	39,8	42,0	36,4			8 . 49 . 39,85	G.
	(*d*) ☽ S.L............	55 . 0	3 . 54,0	62,0	56,9	59,8	60,0	56,2		- 2,80	55 . 3 . 55,10	G.
	☽ S.L. M.........	55 . 0	3 . 54,0	62,0	56,9	59,8	60,0	56,2	10,205	- 2,03	55 . 3 . 55,87	G.
	☽ S.L. M..........	55 . 0	3 . 54,0	62,0	56,9	59,8	60,0	56,2	10,307	- 4,01 + 2,80	55 . 3 . 56,69	G.
	☽ S.L. M.........	55 . 0	3 . 54,0	62,0	56,9	59,8	60,0	56,2	10,470	- 7,45 + 5,60	55 . 3 . 56,05	G.
	(*e*) Uranus............	37 . 35	0 . 50,0	58,3	53,0	55,9	54,8	53,2		- 0,11	37 . 35 . 54,04	G.
	α Ursæ Maj. SP. R. M.........	221 . 45	1 . 14,9	23,3	17,0	22,1	20,8	18,8	8,529	+ 32,94	221 . 46 . 52,34	G.
	α Ursæ Major. SP.	271 . 30	1 . 7,3	14,1	9,2	12,9	9,8	9,8			271 . 31 . 10,43	G.
Sept. 30	(*f*) ☽ S.L............	44 . 45	0 . 13,8	21,8	16,5	18,9	18,5	17,8		- 9,26	44 . 45 . 8,61	G.
	☽ S.L. M.........	44 . 45	0 . 13,8	21,8	16,5	18,9	18,5	17,8	10,284	- 3,74 - 4,63	44 . 45 . 9,50	G.
	☽ S.L. M.........	44 . 45	0 . 13,8	21,8	16,5	18,9	18,5	17,8	10,510	- 8,38	44 . 45 . 9,49	G.
	☽ S.L. M.........	44 . 45	0 . 13,8	21,8	16,5	18,9	18,5	17,8	10,745	- 13,14 + 4,63	44 . 45 . 9,36	G.
	☽ S.L. M.........	44 . 45	0 . 13,8	21,8	16,5	18,9	18,5	17,8	10,916	- 16,74 + 9,26	44 . 45 . 10,39	G.

Coincidences at the five wires and Runs taken Oct. 4, 1^{h}. (Therm. 54°.)

(*a*) At the 4th wire.

(*b*) At the 1st, 2nd, and 4th wires. Very faint and doubtful.

(*c*) At the 5th wire.

(*d*) At the 2nd, 3rd, 4th and 5th wires. Waving.

(*e*) At the 5th wire: extremely faint. Correction for change of N.P.D. = - 0″,02.

(*f*) At the five wires.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
"	° ′ "	Inch.	°	°	′ "	′ "	r	′ "	° ′ "	
2,45	- 67 . 57 . 11,29	29,824	54,0	51,5	2 . 22,13				- 30 . 12 . 25,14	υ Ur. Maj. SP. R.
	- 67 . 57 . 8,56								- 30 . 12 . 22,41	υ Ursæ Maj. SP.
	60 . 51 . 22,60		52,4	49,0	1 . 44,11	0,39			98 . 40 . 14,60	Uranus.
	32 . 8 . 16,19	29,880	48,8	48,1	36,73	2,32			69 . 55 . 58,88	Mars.
	42 . 11 . 48,70	29,920	54,5	56,4	52,16	3,71	10,700	6,26	79 . 59 . 39,17	Venus.
	52 . 4 . 4,24	29,900	56,3	60,0	1 . 13,16	6,72		15 . 58,10	89 . 36 . 20,86	⊙.
	51 . 32 . 8,68				1 . 11,78	6,67			89 . 36 . 20,17	⊙.
	82 . 2 . 58,94	29,920	56,8	56,4					118 . 45 . 4,38	☽.
	82 . 2 . 57,61				6 . 30,42	56 . 5,27		15 . 27,99	118 . 45 . 3,05	☽.
	82 . 2 . 57,17								118 . 45 . 2,61	☽.
	60 . 56 . 10,22	29,800	53,2	49,2	1 . 44,32	0,39			98 . 45 . 2,43	Uranus.
2,18	- 65 . 7 . 50,97				2 . 4,87				- 27 . 22 . 47,56	α Ur. Maj. SP. R.
	- 65 . 7 . 50,57								- 27 . 22 . 47,16	α Ursæ Maj. SP.
2,63	- 24 . 30 . 43,91				26,54				13 . 15 . 57,83	γ Cephei R.
	- 24 . 30 . 42,60								13 . 15 . 59,14	γ Cephei.
2,45	- 73 . 8 . 25,02				3 . 9,63				- 35 . 24 . 26,37	γ Ur. Maj. SP. R.
	- 73 . 8 . 24,07								- 35 . 24 . 25,42	γ Ursæ Maj. SP.
	32 . 58 . 49,98	29,900	52,5	51,2	37,72	2,42			70 . 46 . 33,56	Mars.
1,93	- 10 . 24 . 10,39	29,946	54,4	54,5	10,62				27 . 22 . 47,27	α Ursæ Maj. R.
	- 10 . 24 . 10,47								27 . 22 . 47,19	α Ursæ Majoris.
	44 . 53 . 36,81				57,57	3,84	10,680	6,04	82 . 41 . 32,78	Venus.
	48 . 18 . 21,83		54,8	55,4	1 . 4,73	8,11			86 . 6 . 26,73	Mercury.
	53 . 52 . 30,34	29,942	55,4	57,4	1 . 18,61	6,89		15 . 59,70	91 . 56 . 50,04	⊙.
	54 . 24 . 31,55				1 . 20,16	6,94			91 . 56 . 53,35	⊙.
3,61	- 39 . 19 . 28,31		56,1	58,6	46,96				- 1 . 33 . 6,99	Polaris SP. R.
	- 39 . 19 . 25,04								- 1 . 33 . 3,72	Polaris SP.
0,71	32 . 10 . 40,41		56,4	59,2	36,04				69 . 58 . 24,73	Arcturus R.
	32 . 10 . 37,88								69 . 58 . 22,20	Arcturus.
	78 . 24 . 53,13	29,974	55,3	54,3					115 . 3 . 20,11	☽.
	78 . 24 . 53,90								115 . 3 . 20,88	☽.
	78 . 24 . 54,72				4 . 35,08	57 . 17,73		15 . 58,65	115 . 3 . 21,70	☽.
	78 . 24 . 54,08								115 . 3 . 21,06	☽.
	60 . 56 . 52,07		53,0	51,7	1 . 44,44	0,39			98 . 45 . 44,40	Uranus.
1,39	- 65 . 7 . 50,37				2 . 4,95				- 27 . 22 . 47,04	α Ur. Maj. SP. R.
	- 65 . 7 . 51,54								- 27 . 22 . 48,21	α Ursæ Maj. SP.
	68 . 6 . 6,64	30,184	55,3	53,1					104 . 43 . 18,59	☽.
	68 . 6 . 7,53								104 . 43 . 19,48	☽.
	68 . 6 . 7,52				2 . 24,42	55 . 52,93		16 . 27,82	104 . 43 . 19,47	☽.
	68 . 6 . 7,39								104 . 43 . 19,34	☽.
	68 . 6 . 8,42								104 . 43 . 20,37	☽.

Coincidence of Micrometer Wire with fixed Wire = 10r,107 at middle Wire. From Sept. 26 = 10r,106, 10r,105, 10r,108, 10r,115, 10r,113 at the five wires.

One Micrometer Revolution = 20″,855.

Correction for Runs = – 1″,8. From Sept. 26 = – 1″,9.

Adopted Zenith Point = 336°. 39′. 1″,08. From Sept. 22 = 336°. 39′. 1″,97.

Assumed Co-latitude = 37°. 47′. 8″,28

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Sept. 30	σ Aquarii.........	40 . 15	4 . 51,9	60,7	56,5	56,4	57,5	53,3			40 . 19 . 55,73	G.
Oct. 2	κ¹ Piscium.........	28 . 25	3 . 2,0	10,9	6,3	7,3	6,7	4,0			28 . 28 . 6,00	G.
	(a) ☽ S.L............	30 . 15	0 . 1,5	8,0	4,6	6,3	7,2	3,3		− 10,44	30 . 14 . 54,71	G.
	☽ S.L. M..........	30 . 15	0 . 1,5	8,0	4,6	6,3	7,2	3,3	10,318	− 4,44 − 5,22	30 . 14 . 55,49	G.
	☽ S.L. M..........	30 . 15	0 . 1,5	8,0	4,6	6,3	7,2	3,3	10,598	− 10,22	30 . 14 . 54,93	G.
	☽ S.L. M.........	30 . 15	0 . 1,5	8,0	4,6	6,3	7,2	3,3	10,845	− 15,23 + 5,22	30 . 14 . 55,14	G.
	☽ S.L. M.........	30 . 15	0 . 1,5	8,0	4,6	6,3	7,2	3,3	11,058	− 19,70 + 10,44	30 . 14 . 55,89	G.
	ι Piscium..........	27 . 45	2 . 41,5	49,4	44,8	45,5	45,0	44,0			27 . 47 . 44,87	G.
	α Cassiopeiæ R. M.	160 . 5	0 . 33,2	41,0	37,7	40,0	40,8	37,8	11,007	− 18,75	160 . 5 . 19,63	G.
	α Cassiopeiæ......	333 . 10	2 . 41,3	45,8	44,0	45,6	47,4	43,0			333 . 12 . 44,35	G.
	A.S.C. 79	24 . 20	3 . 34,0	41,9	37,0	38,5	39,0	36,3			24 . 23 . 37,55	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 14,2	24,3	20,1	21,0	19,9	17,8	10,603	− 10,32	167 . 3 . 9,01	G.
	α Ursæ Majoris...	326 . 10	4 . 50,0	56,5	54,8	52,9	53,4	50,3			326 . 14 . 52,68	G.
	Venus S.L.	23 . 50	3 . 29,7	39,0	33,0	34,0	34,0	32,0			23 . 53 . 33,38	G.
	Mercury, center ..	24 . 35	1 . 56,0	66,5	61,2	62,3	61,5	58,8			24 . 37 . 0,92	G.
Oct. 3	⊙ N.L. M.........	32 . 25	3 . 23,4	33,6	27,1	27,5	27,5	26,0	11,138	− 21,49	32 . 28 . 5,81	G.
	⊙ S.L.............	33 . 0	0 . 4,0	14,4	7,5	10,4	8,3	6,4			33 . 0 . 8,48	G.
	(b) α Lyræ R. M.....	143 . 0	3 . 21,0	29,1	23,0	24,7	23,8	25,1	6,180	+ 1 . 22,07 − 0,12	143 . 4 . 46,18	G.
	(c) α Lyræ...........	350 . 10	3 . 11,2	17,8	15,8	14,5	14,8	11,5		+ 0,48	350 . 13 . 14,55	G.
	(d) β Lyræ R.........	137 . 35	2 . 21,0	30,0	23,0	25,7	24,4	24,3			137 . 37 . 24,58	G.
	β Lyræ...........	355 . 40	0 . 34,1	40,4	37,5	37,0	38,3	36,1			355 . 40 . 37,20	G.
	γ Aquilæ R. M....	114 . 40	1 . 19,9	28,1	21,4	24,3	20,4	23,0	12,389	− 47,57	114 . 40 . 35,20	G.
	γ Aquilæ.........	18 . 35	2 . 22,8	30,0	24,7	26,0	25,3	25,9			18 . 37 . 25,63	G.
	Uranus............	37 . 35	4 . 33,9	44,0	37,3	37,8	36,7	37,0			37 . 39 . 37,48	G.
	A.S.C. 79........	24 . 20	3 . 32,6	42,3	35,6	35,4	34,2	36,0			24 . 23 . 35,78	G.
	(e) ☽ S.L. M..........	22 . 30	4 . 34,7	43,4	38,0	36,9	35,8	36,7	2,377	+ 2 . 41,20 − 10,20	22 . 37 . 8,28	G.
	☽ S.L. M..........	22 . 30	4 . 34,7	43,4	38,0	36,9	35,8	36,7	2,632	+ 2 . 35,87 − 5,10	22 . 37 . 8,05	G.
	☽ N.L..............	22 . 0	3 . 11,2	19,8	13,2	14,8	10,8	14,8			22 . 3 . 13,90	G.
	☽ N.L. M..........	22 . 0	3 . 11,2	19,8	13,2	14,8	10,8	14,8	10,360	− 5,10 + 5,10	22 . 3 . 13,90	G.
	☽ N.L. M..........	22 . 0	3 . 11,2	19,8	13,2	14,8	10,8	14,8	10,688	− 11,99 + 10,20	22 . 3 . 12,11	G.
	η Piscium.........	14 . 20	0 . 9,5	15,3	12,0	11,4	7,9	9,8			14 . 20 . 10,97	G.
	ο Piscium.........	20 . 30	0 . 5,2	13,2	8,2	9,8	5,9	6,8			20 . 30 . 8,18	G.
Oct. 4	(f) ⊙ S.L. M..	33 . 25	0 . 18,2	28,5	21,4	23,0	21,0	22,5	16,015	− 2 . 3,20	33 . 23 . 19,22	G.
	⊙ N.L............	32 . 50	1 . 14,2	25,0	17,1	18,5	17,4	18,0			32 . 51 . 18,28	G.
	α Aquarii R. M...	103 . 15	4 . 31,0	44,0	34,5	36,0	33,8	33,7	4,497	+ 1 . 57,02	103 . 21 . 32,24	G.
	α Aquarii	29 . 55	1 . 26,7	37,3	30,4	31,4	31,9	31,1			29 . 56 . 31,37	G.
	Uranus............	37 . 40	0 . 14,9	26,2	18,6	21,2	20,0	20,1			37 . 40 . 20,15	G.
	(d) α Pegasi R........	118 . 45	2 . 20,6	33,5	23,2	25,5	23,9	23,8			118 . 47 . 24,93	G.
	α Pegasi	14 . 30	0 . 34,7	44,4	38,8	38,5	38,3	37,3			14 . 30 . 38,63	G.
	α Cassiopeiæ R. M.	160 . 5	0 . 37,0	49,2	42,8	43,6	41,8	42,0	11,170	− 22,15	160 . 5 . 20,53	G.
	α Cassiopeiæ......	333 . 10	2 . 39,3	48,2	44,0	45,1	45,9	42,2			333 . 12 . 43,95	G.

(a) At the five wires. Steady and clear.
(b) At 4th wire. Blur, owing to wind.
(c) At 5th wire.
(d) Accidentally bisected by fixed wire.

(e) At the five wires. S.L. ragged and far from full. Correction applied for defect of illumination = + 1″,49.
(f) Very cloudy.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	63 . 40 . 53,76	30,184	55,3	53,1	1 . 57,66				101 . 29 . 59,70	σ Aquarii.
	51 . 49 . 4,03	30,344	54,0	52,4	1 . 14,72				89 . 37 . 27,03	κ^1 Piscium.
	53 . 35 . 52,74		53,0	51,6					90 . 18 . 27,09	☽.
	53 . 35 . 53,52								90 . 18 . 27,87	☽.
	53 . 35 . 52,96				1 . 19,81	49 . 10,61		16 . 43,13	90 . 18 . 27,31	☽.
	53 . 35 . 53,17								90 . 18 . 27,52	☽.
	53 . 35 . 53,92								90 . 18 . 28,27	☽.
	51 . 8 . 42,90				1 . 13,06				88 . 57 . 4,24	ι Piscium.
1,99	− 3 . 26 . 17,66				3,54				34 . 20 . 47,08	α Cassiopeiæ R.
	− 3 . 26 . 17,62								34 . 20 . 47,12	α Cassiopeiæ.
	47 . 44 . 35,58				1 . 4,81				85 . 32 . 48,67	A.S.C. 79.
0,85	− 10 . 24 . 7,04	30,390	55,6	56,4	10,74				27 . 22 . 50,50	α Ursæ Maj. R.
	− 10 . 24 . 9,29								27 . 22 . 48,25	α Ursæ Majoris.
	47 . 14 . 31,41		56,4	57,0	1 . 3,08	3,95	10,674	5,98	85 . 2 . 32,84	Venus.
	47 . 57 . 58,95				1 . 4,71	6,90			85 . 46 . 5,04	Mercury.
	55 . 49 . 3,84	30,386	57,6	58,9	1 . 25,44	7,07		16 . 1,10	93 . 53 . 31,59	☉.
	56 . 21 . 6,51				1 . 27,18	7,12			93 . 53 . 33,75	☉.
0,37	13 . 34 . 15,79	30,360	55,8	54,5	14,16				51 . 21 . 38,23	α Lyræ R.
	13 . 34 . 12,58								51 . 21 . 35,02	α Lyræ.
0,89	19 . 1 . 37,39				20,23				56 . 49 . 5,90	β Lyræ R.
	19 . 1 . 35,23								56 . 49 . 3,74	β Lyræ.
0,42	41 . 58 . 26,77		53,8	52,0	52,98				79 . 46 . 28,03	γ Aquilæ R.
	41 . 58 . 23,66								79 . 46 . 24,92	γ Aquilæ.
	61 . 0 . 35,51		49,8	48,3	1 . 46,79	0,39			98 . 49 . 30,19	Uranus.
	47 . 44 . 33,81	30,350	47,5	45,3	1 . 5,67				85 . 32 . 47,76	A.S.C. 79.
	45 . 58 . 6,31				1 . 1,73	43 . 52,36			82 . 45 . 41,28	☽.
	45 . 58 . 6,08								82 . 45 . 41,05	☽.
	45 . 24 . 11,93							16 . 42,68	82 . 45 . 36,58	☽.
	45 . 24 . 11,93				1 . 0,52	43 . 26,83			82 . 45 . 36,58	☽.
	45 . 24 . 10,14								82 . 45 . 34,79	☽.
	37 . 41 . 9,00	30,344	47,0	44,8	46,16				75 . 29 . 3,44	η Piscium.
	43 . 51 . 6,21				57,39				81 . 39 . 11,88	ο Piscium.
	56 . 44 . 17,25	30,330	52,8	53,3	1 . 29,30	7,15		16 . 1,40	94 . 16 . 46,28	☉.
	56 . 12 . 16,31				1 . 27,52	7,10			94 . 16 . 46,41	☉.
1,81	53 . 17 . 29,73	30,272	48,8	47,0	1 . 19,48				91 . 5 . 57,49	α Aquarii R.
	53 . 17 . 29,40								91 . 5 . 57,16	α Aquarii.
	61 . 1 . 18,18		48,2	46,7	1 . 46,89	0,39			98 . 50 . 12,96	Uranus.
1,78	37 . 51 . 37,04				46,16				75 . 39 . 31,48	α Pegasi R.
	37 . 51 . 36,66								75 . 39 . 31,10	α Pegasi.
2,24	− 3 . 26 . 18,56		47,3	45,5	3,58				34 . 20 . 46,14	α Cassiopeiæ R.
	− 3 . 26 . 18,02								34 . 20 . 46,68	α Cassiopeiæ.

Coincidence of Micrometer Wire with fixed Wire = 10^{r},106, 10^{r},105, 10^{r},108, 10^{r},115, 10^{r},113 at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = − 1″,9.
Adopted Zenith Point = 336°. 39′. 1″,97.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes. A	B	C	D	E	F	Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Oct. 4	(a) ☽ N.L.	14 . 50	3 . 58,8	68,2	65,6	60,9	61,5	60,2		- 9,36	14 . 53 . 52,92	G.
	☽ N.L. M.	14 . 50	3 . 58,8	68,2	65,6	60,9	61,5	60,2	10,328	- 4,59 - 4,68	14 . 53 . 53,01	G.
	☽ N.L. M..........	14 . 50	3 . 58,8	68,2	65,6	60,9	61,5	60,2	10,569	- 9,61	14 . 53 . 52,67	G.
	☽ N.L. M.	14 . 50	3 . 58,8	68,2	65,6	60,9	61,5	60,2	10,830	- 14,91 + 4,68	14 . 53 . 52,05	G.
	☽ N.L. M..........	14 . 50	3 . 58,8	68,2	65,6	60,9	61,5	60,2	11,055	- 19,64 + 9,36	14 . 53 . 52,00	G.
Oct. 11	(b) ⊙ N.L. M........	35 . 30	3 . 21,8	31,8	26,0	26,8	25,4	25,0	14,320	-1 . 27,82	35 . 31 . 58,40	G.
	(c) ☽ S.L............	7 . 40	3 . 50,9	57,5	56,4	51,8	54,5	50,8		+ 6,12	7 . 43 . 59,87	G.
	☽ S.L. M.........	7 . 40	3 . 50,9	57,5	56,4	51,8	54,5	50,8	9,959	+ 3,07 + 3,06	7 . 43 . 59,88	G.
	☽ S.L. M.........	7 . 40	3 . 50,9	57,5	56,4	51,8	54,5	50,8	9,777	+ 6,93	7 . 44 . 0,68	G.
	☽ S.L. M.........	7 . 40	3 . 50,9	57,5	55,4	51,8	54,5	50,8	9,680	+ 9,01 - 3,06	7 . 43 . 59,70	G.
	☽ S.L. M.........	7 . 40	3 . 50,9	57,5	56,4	51,8	54,5	50,8	9,504	+ 12,76 - 6,12	7 . 44 . 0,39	G.
	Mars, center......	11 . 45	2 . 52,0	59,6	57,2	53,9	55,8	53,2			11 . 47 . 55,37	G.
	α Ursæ Maj. R. M.	167 . 0	3 . 31,0	42,6	37,4	37,0	37,8	33,8	11,518	- 29,39	167 . 3 . 7,31	G.
	α Ursæ Majoris...	326 . 10	4 . 53,8	60,5	58,8	55,5	56,2	54,4			326 . 14 . 56,67	G.
Oct. 12	⊙ S.L. M.........	36 . 25	2 . 19,6	31,1	24,1	24,0	24,3	23,5	12,198	- 43,57	36 . 26 . 40,93	G.
	⊙ N.L............	35 . 50	4 . 31,7	43,4	35,7	35,0	36,1	34,3			35 . 54 . 36,15	G.
	(d) α Cassiopeiæ R. M.	160 . 5	0 . 26,4	36,5	31,8	31,0	32,4	30,9	10,403	- 5,99 - 0,87	160 . 5 . 24,66	G.
	(d) α Cassiopeiæ......	333 . 10	2 . 38,9	45,2	43,5	41,8	38,8	40,9		+ 0,87	333 . 12 . 42,45	G.
	γ Cassiopeiæ R. M.	164 . 15	1 . 22,7	32,4	27,4	28,0	25,0	27,4	9,383	+ 15,15	164 . 16 . 42,33	G.
	γ Cassiopeiæ.......	329 . 0	1 . 22,7	27,2	25,5	25,2	20,2	24,2			329 . 1 . 24,20	G.
	Mars, center......	11 . 55	2 . 42,2	48,4	48,2	42,0	44,0	42,1			11 . 57 . 44,55	G.
	(e) ☽ S.L.............	12 . 15	3 . 58,9	63,8	65,3	58,4	60,8	58,2		+ 7,04	12 . 19 . 8,04	G.
	☽ S.L. M.........	12 . 15	3 . 58,9	63,8	65,3	58,4	60,8	58,2	10,030	+ 1,59 + 3,52	12 . 19 . 6,11	G.
	☽ S.L. M.........	12 . 15	3 . 58,9	63,8	65,3	58,4	60,8	58,2	9,870	+ 4,99	12 . 19 . 5,99	G.
	☽ S.L. M.........	12 . 15	3 . 58,9	63,8	65,3	58,4	60,8	58,2	9,648	+ 9,67 - 3,52	12 . 19 . 7,15	G.
	☽ S.L. M.........	12 . 15	3 . 58,9	63,8	65,3	58,4	60,8	58,2	9,457	+ 13,74 - 7,04	12 . 19 . 7,70	G.
	(f) Regulus R. M.....	117 . 10	2 . 22,2	30,8	25,7	25,3	22,2	24,0	10,497	- 8,10	117 . 12 . 17,00	G.
	Regulus..........	16 . 5	0 . 44,4	50,0	50,0	45,8	44,8	45,1			16 . 5 . 46,70	G.
Oct. 13	Uranus............	37 . 45	1 . 2,3	9,5	7,7	5,2	2,8	5,0			37 . 46 . 5,45	G.
	(g) α Pegasi R. M.....	118 . 45	2 . 17,5	25,8	20,9	19,3	17,9	18,1	9,890	+ 4,57	118 . 47 . 24,55	G.
	α Pegasi..........	14 . 30	0 . 36,4	41,2	40,9	36,9	36,7	35,2			14 . 30 . 37,90	G.
	γ Cephei R. M....	181 . 5	4 . 21,8	32,5	28,8	27,0	24,0	25,0	8,965	+ 23,86	181 . 9 . 50,49	G.
	γ Cephei.........	312 . 5	3 . 13,8	19,0	16,5	14,9	11,2	13,6			312 . 8 . 14,92	G.
	Polaris R. M......	192 . 50	1 . 16,3	25,3	21,8	21,8	21,6	18,2	6,816	+1 . 8,68	192 . 52 . 29,55	G.
	Polaris............	300 . 25	0 . 35,8	40,2	37,9	35,8	32,8	35,6			300 . 25 . 36,37	G.
Oct. 16	Polaris SP. R. M..	195 . 55	4 . 28,4	36,4	31,5	31,0	34,8	30,0	13,600	-1 . 12,81	195 . 58 . 19,32	G.
	Polaris SP........	297 . 15	4 . 39,6	47,9	43,0	42,0	44,4	40,8			297 . 19 . 43,08	G.
Oct. 17	⊙ N.L. M........	37 . 45	2 . 24,8	36,8	27,3	29,3	31,3	27,6	14,036	-1 . 21,91	37 . 46 . 7,67	G.
	⊙ S.L............	38 . 15	3 . 11,3	22,3	15,2	15,9	18,5	14,8			38 . 18 . 16,42	G.

Coincidences at the five wires and Runs taken Oct. 16, 23h. (Therm. 56°.)

(a) At the five wires. Rarely seen so clear and steady.
(b) Very faint.
(c) At the five wires. Ragged.
(d) Each observation near the 5th wire. Not good.
(e) At the five wires. The 2nd and 3rd wires very cloudy; the others pretty good.
(f) Unsteady.
(g) A blur.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	38 . 14 . 50,95	30,252	46,5	44,7					75 . 41 . 52,46	☽.
	38 . 14 . 51,04								75 . 41 . 52,55	☽.
	38 . 14 . 50,70				46,97	37 . 30,19		16 . 36,45	75 . 41 . 52,21	☽.
	38 . 14 . 50,08								75 . 41 . 51,59	☽.
	38 . 14 . 50,03								75 . 41 . 51,54	☽.
	58 . 52 . 56,43	29,792	54,8	55,0	1 . 34,94	7,34		16 . 3,30	96 . 57 . 35,61	⊙.
	31 . 4 . 57,90	29,512	47,6	44,6					68 . 9 . 31,20	☽.
	31 . 4 . 57,91								68 . 9 . 31,21	☽.
	31 . 4 . 58,71				35,06	28 . 11,01		14 . 59,03	68 . 9 . 32,01	☽.
	31 . 4 . 57,73								68 . 9 . 31,03	☽.
	31 . 4 . 58,42								68 . 9 . 31,72	☽.
	35 . 8 . 53,40				40,94	2,69			72 . 56 . 39,93	Mars.
1,99	− 10 . 24 . 5,34	29,522	47,4	46,8	10,64				27 . 22 . 52,30	α Ursæ Maj. R.
	− 10 . 24 . 5,30								27 . 22 . 52,34	α Ursæ Majoris.
	59 . 47 . 38,96	29,514	48,6	48,7	1 . 38,78	7,41		16 . 3,60	97 . 20 . 15,01	⊙.
	59 . 15 . 34,18				1 . 36,70	7,37			97 . 20 . 15,39	⊙.
3,56	− 3 . 26 . 22,69	29,600	40,4	37,7	3,56				34 . 20 . 42,03	α Cassiopeiæ R.
	− 3 . 26 . 19,52								34 . 20 . 45,20	α Cassiopeiæ.
3,27	− 7 . 37 . 40,36				7,93				30 . 9 . 19,99	γ Cassiopeiæ R.
	− 7 . 37 . 37,77								30 . 9 . 22,58	γ Cassiopeiæ.
	35 . 18 . 42,58	29,644	41,5	37,4	42,00	2,71			73 . 6 . 30,15	Mars.
	35 . 40 . 6,07	29,650	40,5	38,3					72 . 41 . 35,29	☽.
	35 . 40 . 4,14								72 . 41 . 33,36	☽.
	35 . 40 . 4,02				42,49	31 . 30,49		14 . 51,06	72 . 41 . 33,24	☽.
	35 . 40 . 5,18								72 . 41 . 34,40	☽.
	35 . 40 . 5,73								72 . 41 . 34,95	☽.
1,85	39 . 26 . 44,97				48,69				77 . 14 . 41,94	Regulus R.
	39 . 26 . 44,73								77 . 14 . 41,70	Regulus.
	61 . 7 . 3,48	29,812	37,5	35,7	1 . 48,13	0,39			98 . 55 . 59,50	Uranus.
1,23	37 . 51 . 37,42				46,51				75 . 39 . 32,21	α Pegasi R.
	37 . 51 . 35,93								75 . 39 . 30,72	α Pegasi.
2,71	− 24 . 30 . 48,52				27,30				13 . 15 . 52,46	γ Cephei R.
	− 24 . 30 . 47,05								13 . 15 . 53,93	γ Cephei.
2,96	− 36 . 13 . 27,58	29,816	37,0	35,4	43,87				1 . 32 . 56,83	Polaris R.
	− 36 . 13 . 25,60								1 . 32 . 58,81	Polaris.
1,20	− 39 . 19 . 18,22	29,220	55,8	57,0	45,98				− 1 . 32 . 55,92	Polaris SP. R.
	− 39 . 19 . 18,02								− 1 . 32 . 55,72	Polaris SP.
	61 . 7 . 6,57	29,222	55,9	57,2	1 . 41,40	7,52		16 . 4,90	99 . 11 . 53,63	⊙.
	61 . 39 . 15,32				1 . 43,66	7,55			99 . 11 . 54,81	⊙.

Coincidence of Micrometer Wire with fixed Wire = 10r,106, 10r,105, 10r,108, 10r,115, 10r,113, at the five wires.
From Oct. 11 = 10r,103, 10r,106, 10r,109, 10r,112, 10r,116.
One Micrometer Revolution = 20″,855.
Correction for Runs = − 1″,9. From Oct. 11 = + 0″,8.
Adopted Zenith Point = 336°. 39′. 1″,97. From Oct. 16 = 336°. 39′. 1″,10.
Assumed Co-latitude = 37° . 47′ . 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes. A	B	C	D	E	F	Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Oct. 17	α Cygni R. M.....	149. 5	4.21,8	31,7	26,3	25,5	29,2	24,0	11,654	-32,22	149. 8.54,31	G.
	α Cygni..........	344. 5	4. 4,9	11,7	9,8	7,2	11,4	5,1			344. 9. 8,47	G.
	(*a*) α Arietis R. M....	127. 5	4. 8,0	18,5	12,5	12,0	12,2	9,5	11,606	-31,23	127. 8.41,00	G.
	α Arietis.........	6. 5	4.17,8	24,3	22,5	16,9	22,0	16,8			6.. 9.20,17	G.
	Venus S.L........	31.10	4.18,7	29,9	23,6	22,1	25,7	21,0			31.14.23,62	G.
	(*b*) Mercury, center...	32.20	2.45,5	56,9	51,2	51,1	52,8	48,9			32.22.51,15	G.
Oct. 18	⊙ S.L. M.........	38.35	4.35,1	49,4	39,2	38,5	42,3	37,5	8,704	+29,30	38.40. 9,75	G.
	⊙ N.L............	38. 5	2.57,2	68,5	63,0	61,5	62,2	59,7			38. 8. 2,10	G.
	(*c*) Venus S.L........	31.40	3.58,9	68,2	63,0	62,7	63,8	61,4			31.44. 3,10	G.
Oct. 19	⊙ N.L. M.........	38.25	4.34,0	46,2	37,4	37,9	40,3	37,0	9,709	+8,34	38.29.47,26	G.
	⊙ S.L.............	39. 0	1.52,8	64,3	57,9	57,7	59,1	56,0			39. 1.58,02	G.
	α Lyræ R. M......	143. 0	3.26,1	36,5	30,4	31,0	32,2	30,9	6,550	+1.14,23	143. 4.45,51	G.
	α Lyræ	350.10	3.11,3	19,1	17,8	15,5	17,2	12,8			350.13.15,70	G.
	α Aquilæ R. M...	112.50	3.19,4	32,2	23,0	24,7	23,3	21,8	8,441	+34,79	112.53.58,94	G.
	α Aquilæ.........	20.20	3.58,3	70,2	63,8	63,3	68,0	61,3			20.24. 4,27	G.
	β Aquilæ R. M...	110.25	2.20,4	31,9	22,8	26,4	24,0	24,0	9,298	+16,91	110.27.41,89	G.
	β Aquilæ.........	22.50	0.12,2	25,0	17,5	18,0	17,2	16,2			22.50.17,68	G.
	(*d*) Mars, center......	13. 5	2.47,9	57,2	53,2	51,3	53,0	48,7			13. 7.51,97	G.
	Venus S.L........	32.10	3.35,8	48,1	40,0	41,8	43,5	39,8			32.13.41,60	G.
	Mercury, center...	33.45	3.28,7	40,8	31,5	32,8	36,0	31,0			33.48.33,57	G.
Oct. 20	⊙ S.L. M.........	39.20	4.33,0	43,0	35,2	36,6	38,1	36,0	12,950	-59,24	39.23.37,86	G.
	⊙ N.L............	38.50	1.25,7	36,0	28,0	30,4	31,4	30,3			38.51.30,33	G.
	Uranus...........	37.45	4.46,0	57,1	48,4	49,3	52,0	48,7			37.49.50,38	G.
	α Pegasi R. M.....	118.45	2.19,0	28,4	18,6	21,1	23,4	19,7	9,990	+2,49	118.47.24,26	G.
	α Pegasi..........	14.30	0.34,6	42,0	36,0	35,7	40,4	35,0			14.30.37,30	G.
Oct. 23	Venus S.L........	34.10	1.29,1	37,5	31,0	31,8	33,2	30,9			34.11.32,28	G.
	Mercury, center...	36.40	0.17,8	26,3	19,9	23,8	21,3	20,5			36.40.21,60	G.
Oct. 24	⊙ S.L. M.........	40.45	3.31,8	42,0	35,0	35,3	35,4	33,2	9,775	+6,97	40.48.42,52	G.
	⊙ N.L............	40.15	1.27,8	38,0	30,0	31,8	31,3	29,7			40.16.31,47	G.
	(*e*) ☽ S.L. M.........	58.10	3.10,0	19,3	13,3	13,3	14,4	12,2	11,073	-20,23 -1,96	58.12.51,64	G.
	☽ S.L. M.........	58.10	3.10,0	19,3	13,3	13,3	14,4	12,2	11,138	-21,53 -0,98	58.12.51,32	G.
	☽ S.L. M.........	58.10	3.10,0	19,3	13,3	13,3	14,4	12,2	11,163	-21,98	58.12.51,85	G.
	☽ S.L. M.........	58.10	3.10,0	19,3	13,3	13,3	14,4	12,2	11,189	-22,47 +0,98	58.12.52,34	G.
	☽ S.L. M.........	58.10	3.10,0	19,3	13,3	13,3	14,4	12,2	11,240	-23,45 +1,96	58.12.52,34	G.
	Mars, center......	13.55	4. 4,1	11,8	9,6	6,3	8,8	5,0			13.59. 7,72	G.
	Regulus R. M....	117.10	2.17,8	26,4	21,4	21,1	20,0	18,9	10,410	-6,28	117.12.14,72	G.
	Regulus..........	16. 5	0.43,1	52,0	47,8	48,0	47,2	45,8			16. 5.47,33	G.
	α Ursæ Maj. R. M.	167. 0	3.31,5	41,4	36,9	35,8	36,4	34,4	11,726	-33,73	167. 3. 2,44	G.
	α Ursæ Majoris...	326.10	4.58,3	63,2	62,9	58,8	60,1	57,0			326.15. 0,18	G.
Oct. 26	β Aquilæ R. M...	110.25	2.19,7	30,3	20,4	23,4	22,0	19,7	9,125	+20,65	110.27.43,30	G.
	β Aquilæ.........	22.50	0.14,8	22,9	17,3	17,8	18,5	16,1			22.50.17,90	G.
	λ Ursæ Min. R. M..	193.15	0.17,8	27,3	20,0	23,4	24,1	21,8	10,763	-13,51	193.15. 8,89	G.
	λ Ursæ Minoris...	300. 0	2.53,0	59,0	53,7	52,9	51,2	51,2			300. 2.53,58	G.
	α Cygni R. M.....	149. 5	4.20,9	30,2	24,1	24,3	24,0	22,0	11,547	-29,87	149. 8.54,50	G.
	α Cygni..........	344. 5	4. 3,8	10,0	8,8	6,2	6,2	3,8			344. 9. 6,58	G.

Coincidences at the five wires taken Nov. 1, 1h.
Runs taken at the same time with the same result as before. (Therm. 49°.)

(*a*) Mercury disturbed by wind.
(*b*) Very cloudy.
(*c*) Cloudy.
(*d*) Just after opening the shutters.
(*e*) At the five wires: all with the micrometer, the change of declination being slow. Exceedingly faint and doubtful.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
"	° ′ "	Inch.	°	°	′ "	′ "	r	′ "	° ′ "	
1,39	7 . 30 . 6,79	29,350	51,7	50,2	7,53				45 . 17 . 22,60	α Cygni R.
	7 . 30 . 7,37								45 . 17 . 23,18	α Cygni.
0,59	29 . 30 . 20,10	29,564	47,8	46,1	32,87				67 . 18 . 1,25	α Arietis R.
	29 . 30 . 19,07								67 . 18 . 0,22	α Arietis.
	54 . 35 . 22,52	29,950	50,0	50,3	1 . 21,89	4,27	10,677	5,98	92 . 23 . 42,44	Venus.
	55 . 43 . 50,05				1 . 25,43	5,52			93 . 32 . 18,24	Mercury.
	62 . 1 . 8,65	29,954	50,9	51,6	1 . 49,11	7,58		16 . 5,20	99 . 33 . 53,26	⊙.
	61 . 29 . 1,00				1 . 46,71	7,54			99 . 33 . 53,65	⊙.
	55 . 5 . 2,00	29,866	53,7	54,3	1 . 22,50	4,29	10,655	5,74	92 . 53 . 22,75	Venus.
	61 . 50 . 46,16	29,892	54,0	54,6	1 . 47,44	7,57		16 . 5,50	99 . 55 . 39,81	⊙.
	62 . 22 . 56,92				1 . 49,89	7,61			99 . 55 . 41,98	⊙.
0,60	13 . 34 . 15,59	29,964	53,8	53,3	14,01				51 . 21 . 37,88	α Lyræ R.
	13 . 34 . 14,60								51 . 21 . 36,89	α Lyræ.
1,61	43 . 45 . 2,16	29,980	52,8	51,7	55,70				81 . 33 . 6,14	α Aquilæ R.
	43 . 45 . 3,17								81 . 33 . 7,15	α Aquilæ.
59,79	46 . 11 . 19,21				1 . 0,64				83 . 59 . 28,13	β Aquilæ R.
	46 . 11 . 16,58								83 . 59 . 25,50	β Aquilæ.
	36 . 28 . 50,87	29,918	53,4	53,8	42,78	2,88			74 . 16 . 39,05	Mars.
	55 . 34 . 40,50	30,002	58,7	60,6	1 . 23,34	4,31	10,645	5,64	93 . 23 . 2,17	Venus.
	57 . 9 . 32,47		59,2	61,5	1 . 28,28	5,47			94 . 58 . 3,56	Mercury.
	62 . 44 . 36,76	30,004	59,8	61,1	1 . 50,53	7,64		16 . 5,70	100 . 17 . 22,23	⊙.
	62 . 12 . 29,23				1 . 48,06	7,60			100 . 17 . 23,67	⊙.
	61 . 10 . 49,28	30,136	53,6	52,0	1 . 45,94	0,39			98 . 59 . 43,11	Uranus.
0,78	37 . 51 . 36,84				45,46				75 . 39 . 30,58	α Pegasi R.
	37 . 51 . 36,20								75 . 39 . 29,94	α Pegasi.
	57 . 32 . 31,18	29,678	56,5	57,4	1 . 29,35	4,38	10,647	5,65	95 . 20 . 58,78	Venus.
	60 . 1 . 20,50			58,7	1 . 38,21	5,43			97 . 50 . 1,56	Mercury.
	64 . 9 . 41,42	29,688	57,5	59,2	1 . 56,72	7,74		16 . 6,80	101 . 42 . 31,88	⊙.
	63 . 37 . 30,37				1 . 54,02	7,71			101 . 42 . 31,76	⊙.
	81 . 33 . 50,54	29,766	57,0	56,4					118 . 15 . 39,99	☽.
	81 . 33 . 50,22								118 . 15 . 39,67	☽.
	81 . 33 . 50,75				6 . 7,74	55 . 59,12		15 . 27,45	118 . 15 . 40,20	☽.
	81 . 33 . 51,24								118 . 15 . 40,69	☽.
	81 . 33 . 51,24								118 . 15 . 40,69	☽.
	37 . 20 . 6,62	30,014	53,8	49,7	44,63	3,00			75 . 7 . 56,53	Mars.
1,03	39 . 26 . 46,38			49,4	48,17				77 . 14 . 42,83	Regulus R.
	39 . 26 . 46,23								77 . 14 . 42,68	Regulus.
1,31	- 10 . 24 . 1,34	30,018	51,8	50,5	10,73				27 . 22 . 56,21	α Ursæ Maj. R.
	- 10 . 24 . 0,92								27 . 22 . 56,63	α Ursæ Majoris.
0,60	46 . 11 . 17,80	29,810	54,7	52,8	1 . 0,16				83 . 59 . 26,24	β Aquilæ R.
	46 . 11 . 16,80								83 . 59 . 25,24	β Aquilæ.
1,24	- 36 . 36 . 7,79		53,7	52,2	42,97				1 . 10 . 17,52	λ Ursæ Min. R.
	- 36 . 36 . 7,52								1 . 10 . 17,79	λ Ursæ Minoris.
0,54	7 . 30 . 6,60				7,62				45 . 17 . 22,50	α Cygni R.
	7 . 30 . 5,48								45 . 17 . 21,38	α Cygni.

Coincidence of Micrometer Wire with fixed Wire = 10r,103, 10r,106, 10r,109, 10r,112, 10r,116 at the five wires.
From Oct. 26 = 10r,110, 10r,111, 10r,115, 10r,122, 10r,124.

One Micrometer Revolution = 20″,855.

Correction for Runs = + 0″,8.

Adopted Zenith point = 336°. 39′. 1″,10.

Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Oct. 26	(*a*) ☽ S.L.	52 . 30	0 . 1,2	10,0	4,4	5,2	6,8	3,3		- 6,72	52 . 29 . 58,43	G.
	☽ S.L. M.	52 . 30	0 . 1,2	10,0	4,4	5,2	6,8	3,3	10,228	- 2,45 - 3,36	52 . 29 . 59,34	G.
	☽ S.L. M	52 . 30	0 . 1,2	10,0	4,4	5,2	6,8	3,3	10,363	- 5,17	52 . 29 . 59,98	G.
	☽ S.L. M.	52 . 30	0 . 1,2	10,0	4,4	5,2	6,8	3,3	10,576	- 9,46 + 3,36	52 . 29 . 59,05	G.
	☽ S.L. M.	52 . 30	0 . 1,2	10,0	4,4	5,2	6,8	3,3	10,718	- 12,39 + 6,72	52 . 29 . 59,48	G.
	ζ Capricorni	51 . 50	4 . 37,0	46,9	40,2	40,3	43,0	39,9			51 . 54 . 41,33	G.
	β Cephei R. M.	174 . 15	2 . 23,2	32,5	26,7	29,0	27,7	27,7	10,514	- 8,33	174 . 17 . 19,54	G.
	β Cephei	319 . 0	0 . 42,7	47,0	43,8	43,2	42,3	43,8			319 . 0 . 43,82	G.
	γ Capricorni	46 . 10	2 . 30,0	38,4	32,8	32,0	35,2	33,9			46 . 12 . 33,78	G.
	Uranus	37 . 50	2 . 17,8	26,2	20,3	20,5	21,3	20,6			37 . 52 . 21,18	G.
	Mars, center	14 . 15	4 . 46,9	52,4	53,2	47,0	49,7	45,5			14 . 19 . 49,25	G.
Oct. 28	Venus S.L.	36 . 35	1 . 25,7	34,4	29,3	29,8	29,8	28,0			36 . 36 . 29,53	G.
	Mercury, center	40 . 5	3 . 21,2	30,4	24,4	23,8	24,8	22,6			40 . 8 . 24,62	G.
Oct. 29	⊙ N.L. M.	41 . 55	3 . 29,4	40,7	34,2	34,3	36,7	32,6	9,846	+ 5,61	41 . 58 . 40,36	G.
	⊙ S.L.	42 . 30	0 . 49,8	60,2	54,4	55,0	53,8	51,6			42 . 30 . 54,15	G.
	β Cephei R. M.	174 . 15	2 . 20,5	30,1	24,4	25,6	24,7	24,7	10,374	- 5,40	174 . 17 . 19,67	G.
	β Cephei	319 . 0	0 . 42,0	47,1	43,3	42,8	41,3	41,8			319 . 0 . 43,07	G.
	(*b*) ☽ S.L.	34 . 0	2 . 36,0	45,8	37,8	38,0	38,3	37,8		- 10,04	34 . 2 . 28,98	G.
	☽ S.L. M.	34 . 0	2 . 36,0	45,8	37,8	38,0	38,3	37,8	10,327	- 4,51 - 5,02	34 . 2 . 29,49	G.
	☽ S.L. M.	34 . 0	2 . 36,0	45,8	37,8	38,0	38,3	37,8	10,590	- 9,90	34 . 2 . 29,12	G.
	☽ S.L. M.	34 . 0	2 . 36,0	45,8	37,8	38,0	38,3	37,8	10,810	- 14,35 + 5,02	34 . 2 . 29,69	G.
	☽ S.L. M.	34 . 0	2 . 36,0	45,8	37,8	38,0	38,3	37,8	11,024	- 18,77 + 10,04	34 . 2 . 30,29	G.
	q Piscium	32 . 45	0 . 46,2	56,4	50,4	49,4	49,8	48,1			32 . 45 . 50,07	G.
	t Piscium	27 . 45	2 . 42,5	52,1	46,4	45,0	44,1	43,8			27 . 47 . 45,72	G.
	α Cassiopeiæ R. M.	160 . 5	0 . 28,7	38,0	32,1	33,7	31,8	31,8	10,347	- 4,84	160 . 5 . 27,86	G.
	α Cassiopeiæ	333 . 10	2 . 34,1	39,8	37,0	36,3	35,8	34,9			333 . 12 . 36,38	G.
	Polaris R. M.	192 . 50	1 . 26,5	36,8	28,7	31,7	28,8	29,2	6,948	+1 . 6,06	192 . 52 . 36,38	G.
	Polaris	300 . 25	0 . 27,5	32,3	27,8	26,9	23,8	27,0			300 . 25 . 27,57	G.
	Mars, center	14 . 50	1 . 0,2	6,0	6,3	1,8	2,2	0,2			14 . 51 . 2,82	G.
	Polaris SP. R. M.	195 . 55	4 . 24,3	32,3	28,7	29,9	28,7	25,3	13,720	-1 . 15,18	195 . 58 . 13,14	G.
	Polaris SP.	297 . 15	4 . 48,1	55,2	52,0	49,8	47,7	48,2			297 . 19 . 50,30	G.
	(*c*) Venus S.L.	37 . 0	4 . 55,9	65,8	60,6	60,0	60,3	55,8			37 . 4 . 59,83	G.
	(*d*) Mercury, center	40 . 45	3 . 22,9	33,5	28,8	27,0	26,8	24,7			40 . 48 . 27,37	G.
Oct. 30	⊙ S.L. M.	42 . 45	4 . 30,0	40,3	33,8	32,0	34,4	30,8	6,900	+1 . 7,05	42 . 50 . 40,72	G.
	⊙ N.L.	42 . 15	3 . 23,3	33,1	28,0	26,9	27,4	25,8			42 . 18 . 27,50	G.
	(*e*) ☽ S.L.	26 . 35	0 . 27,3	37,5	31,5	31,3	29,5	31,1		- 10,18	26 . 35 . 21,20	G.
	☽ S.L. M.	26 . 35	0 . 27,3	37,5	31,5	31,3	29,5	31,1	10,330	- 4,57 - 5,09	26 . 35 . 21,72	G.
	☽ S.L. M.	26 . 35	0 . 27,3	37,5	31,5	31,3	29,5	31,1	10,570	- 9,48	26 . 35 . 21,90	G.
	☽ S.L. M.	26 . 35	0 . 27,3	37,5	31,5	31,3	29,5	31,1	10,824	- 14,64 + 5,09	26 . 35 . 21,83	G.
	☽ S.L. M.	26 . 35	0 . 27,3	37,5	31,5	31,3	29,5	31,1	11,052	- 19,36 + 10,18	26 . 35 . 22,20	G.
Oct. 31	α Cephei R. M.	166 . 15	4 . 25,3	37,0	32,2	30,4	28,3	28,1	7,260	+ 59,53	166 . 20 . 29,86	G.
	α Cephei	326 . 55	2 . 31,6	38,0	34,0	33,7	31,5	33,2			326 . 57 . 33,73	G.

(*a*) At the five wires. Very tremulous.

(*b*) At the five wires.

(*c*) The micrometer for the opposite limb was not read.

Adopted semidiameter = Tabular semidiameter corrected by + 0″,60. (See Introduction.)

(*d*) Barely visible, so near the Sun.

(*e*) At the five wires. Misty.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	75 . 50 . 57,33	29,828	53,5	51,7					112 . 29 . 38,80	☽.
	75 . 50 . 58,24								112 . 29 . 39,71	☽.
	75 . 50 . 58,88				3 . 45,75	56 . 20,19		15 . 52,37	112 . 29 . 40,35	☽.
	75 . 50 . 57,95								112 . 29 . 39,42	☽.
	75 . 50 . 58,38								112 . 29 . 39,85	☽.
	75 . 15 . 40,23		52,7	50,4	3 . 37,25				113 . 6 . 25,76	ζ Capricorni.
1,68	− 17 . 38 . 18,44				18,47				20 . 8 . 31,37	β Cephei R.
	− 17 . 38 . 17,28								20 . 8 . 32,53	β Cephei.
	69 . 33 . 32,68				2 . 34,60				107 . 23 . 15,56	γ Capricorni.
	61 . 13 . 20,08	29,836	50,0	48,0	1 . 45,94	0,38			99 . 2 . 13,92	Uranus.
	37 . 40 . 48,15	29,824	46,0	41,5	45,67	3,05			75 . 28 . 39,05	Mars.
	59 . 57 . 28,43	29,286	50,0	50,3	1 . 38,34	4,46	10,661	5,73	97 . 46 . 4,86	Venus.
	63 . 29 . 23,52	29,310	50,6	51,4	1 . 53,71	5,43			101 . 18 . 20,08	Mercury.
	65 . 19 . 39,26	29,322	51,5	51,7	2 . 3,34	7,83		16 . 8,00	103 . 24 . 51,05	⊙.
	65 . 51 . 53,05				2 . 6,41	7,86			103 . 24 . 51,88	⊙.
1,37	− 17 . 38 . 18,57	29,500	48,0	46,8	18,41				20 . 8 . 31,30	β Cephei R.
	− 17 . 38 . 18,03								20 . 8 . 31,84	β Cephei.
	57 . 23 . 27,88	29,544	46,5	45,6					94 . 4 . 56,52	☽.
	57 . 23 . 28,39								94 . 4 . 57,03	☽.
	57 . 23 . 28,02				1 . 30,60	50 . 42,24		16 . 28,00	94 . 4 . 56,66	☽.
	57 . 23 . 28,59								94 . 4 . 57,23	☽.
	57 . 23 . 29,19								94 . 4 . 57,83	☽.
	56 . 6 . 48,97				1 . 26,33				93 . 55 . 23,58	*q* Piscium.
	51 . 8 . 44,62				1 . 12,03				88 . 57 . 4,93	*t* Piscium.
2,12	− 3 . 26 . 26,76				3,50				34 . 20 . 38,02	α Cassiopeiæ R.
	− 3 . 26 . 24,72								34 . 20 . 40,06	α Cassiopeiæ.
1,98	− 36 . 13 . 35,28	29,560	45,5	44,2	42,71				1 . 32 . 50,29	Polaris R.
	− 36 . 13 . 33,53								1 . 32 . 52,04	Polaris.
	38 . 12 . 1,72	29,626	42,8	39,7	46,40	3,13			75 . 59 . 53,27	Mars.
1,72	− 39 . 19 . 12,04	29,638	47,2	47,4	47,55				− 1 . 32 . 51,31	Polaris SP. R.
	− 39 . 19 . 10,80								− 1 . 32 . 50,07	Polaris SP.
	60 . 25 . 58,73	29,642	48,3	48,6	1 . 41,80	4,48		5,60	98 . 14 . 38,73	Venus.
	64 . 9 . 26,27		49,4	50,2	1 . 58,68	5,44			101 . 58 . 27,79	Mercury.
	66 . 11 . 39,62	29,644	49,7	50,6	2 . 10,07	7,88		16 . 8,30	103 . 44 . 41,79	⊙.
	65 . 39 . 26,40				2 . 6,87	7,85			103 . 44 . 42,00	⊙.
	49 . 56 . 20,10	29,686	45,4	43,8					86 . 41 . 43,01	☽.
	49 . 56 . 20,62								86 . 41 . 43,53	☽.
	49 . 56 . 20,80				1 . 9,60	46 . 20,53		16 . 34,44	86 . 41 . 43,71	☽.
	49 . 56 . 20,73								86 . 41 . 43,64	☽.
	49 . 56 . 21,10								86 . 41 . 44,01	☽.
1,80	− 9 . 41 . 28,76	29,708	45,8	42,6	10,04				28 . 5 . 29,48	α Cephei R.
	− 9 . 41 . 27,37								28 . 5 . 30,87	α Cephei.

Coincidence of Micrometer Wire with fixed Wire = 10^{r},110, 10^{r},111, 10^{r},115, 10^{r},122, 10^{r},124 at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = + 0″,8.
Adopted Zenith Point = 336°. 39′. 1″,10.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Oct. 31	(a) ∗ Æ. $22^h.33^m.38^s$..	323 . 0	2 . 41,8	47,9	46,2	43,1	42,2	42,5			323 . 2 . 44,02	G.
	(b) ∗ Æ. $22^h.35^m.22^s$..	323 . 10	1 . 53,8	57,9	57,9	55,3	53,0	54,0		+ 0,60	323 . 11 . 55,97	G.
	Uranus............	37 . 50	3 . 57,8	67,9	62,5	59,3	61,0	58,8			37 . 54 . 1,32	G.
	A.S.C. 79........	24 . 20	3 . 33,5	42,1	39,8	36,0	36,1	35,8			24 . 23 . 37,32	G.
	ε Piscium........	21 . 45	4 . 26,3	35,2	30,7	28,8	27,0	27,8			21 . 49 . 29,42	G.
	Polaris R. M......	192 . 50	1 . 24,8	32,2	29,0	30,8	27,2	28,8	6,912	+ 1 . 6,80	192 . 52 . 35,63	G.
	Polaris............	300 . 25	0 . 25,8	29,1	28,2	26,7	22,7	26,4			300 . 25 . 26,48	G.
	(c) ☽ S.L............	19 . 10	3 . 55,6	59,8	61,8	55,0	55,8	54,0		− 9,80	19 . 13 . 47,30	G.
	☽ S.L. M...........	19 . 10	3 . 55,6	59,8	61,8	55,0	55,8	54,0	10,326	− 4,48 − 4,90	19 . 13 . 47,72	G.
	☽ S.L. M...........	19 . 10	3 . 55,6	59,8	61,8	55,0	55,8	54,0	10,573	− 9,55	19 . 13 . 47,55	G.
	☽ S.L. M...........	19 . 10	3 . 55,6	59,8	61,8	55,0	55,8	54,0	10,821	− 14,58 + 4,90	19 . 13 . 47,42	G.
	☽ S.L. M...........	19 . 10	3 . 55,6	59,8	61,8	55,0	55,8	54,0	11,022	− 18,73 + 9,80	19 . 13 . 48,17	G.
	Jupiter N.L.......	30 . 45	3 . 10,2	19,1	15,8	13,9	14,0	13,6			30 . 48 . 14,52	G.
Nov. 1	∗ Æ. $22^h.35^m.22^s$..	323 . 10	1 . 54,5	59,4	57,8	56,1	57,4	55,4			323 . 11 . 56,82	G.
	Uranus............	37 . 50	4 . 17,0	25,1	20,0	17,9	20,8	18,0			37 . 54 . 19,92	G.
	∗ Æ. $1^h.21^m.46^s$..	332 . 25	4 . 58,8	64,8	63,5	59,3	60,0	58,2			332 . 30 . 0,90	G.
	∗ Æ. $1^h.42^m.1^s$....	335 . 45	0 . 40,0	43,2	43,4	41,2	40,5	41,4			335 . 45 . 41,63	G.
	(c) ☽ N.L............	11 . 55	1 . 6,9	11,3	11,3	5,8	8,8	7,1		− 8,76	11 . 55 . 59,81	G.
	☽ N.L. M.	11 . 55	1 . 6,9	11,3	11,3	5,8	8,8	7,1	10,269	− 3,30 − 4,38	11 . 56 . 0,89	G.
	☽ N.L. M.	11 . 55	1 . 6,9	11,3	11,3	5,8	8,8	7,1	10,430	− 6,57	11 . 56 . 2,00	G.
	☽ N.L. M.	11 . 55	1 . 6,9	11,3	11,3	5,8	8,8	7,1	10,695	− 11,95 + 4,38	11 . 56 . 1,00	G.
	☽ N.L. M.	11 . 55	1 . 6,9	11,3	11,3	5,8	8,8	7,1	10,908	− 16,35 + 8,76	11 . 56 . 0,98	G.
	θ Persei	340 . 15	4 . 6,8	12,3	11,7	7,1	9,0	6,8			340 . 19 . 9,07	G.
	β Persei R. M.....	144 . 45	2 . 23,2	33,6	26,8	29,0	26,2	27,4	13,474	− 1 . 10,06	144 . 46 . 17,71	G.
	β Persei..........	348 . 30	1 . 41,5	43,9	46,1	41,5	41,8	42,4			348 . 31 . 42,92	G.
	δ Arietis	9 . 40	4 . 15,8	21,1	21,5	16,0	19,0	16,1			9 . 44 . 18,37	G.
	α Persei R. M.....	153 . 40	3 . 25,8	36,0	31,5	31,5	29,8	29,8	10,909	− 16,56	153 . 43 . 14,27	G.
	α Persei	339 . 30	4 . 46,4	51,0	51,0	46,5	47,5	46,1			339 . 34 . 48,22	G.
Nov. 2	ε Arietis..........	8 . 5	4 . 32,8	40,2	37,2	33,6	36,3	34,0			8 . 9 . 35,80	G.
	β Persei R. M.....	144 . 45	2 . 19,0	28,0	23,4	21,8	24,8	21,8	13,200	− 1 . 4,34	144 . 46 . 18,86	G.
	β Persei..........	348 . 30	1 . 39,7	45,2	43,9	41,9	42,7	41,4			348 . 31 . 42,52	G.
	δ Arietis	9 . 40	4 . 15,4	22,0	20,3	16,2	20,8	17,0			9 . 44 . 18,73	G.
	α Persei R. M.....	153 . 40	4 . 15,8	25,5	22,0	19,1	21,4	18,9	13,278	− 1 . 5,97	153 . 43 . 14,60	G.
	α Persei	339 . 30	4 . 45,5	54,0	50,1	46,7	48,8	46,7			339 . 34 . 48,77	G.
	(c) ☽ N.L............	6 . 20	2 . 35,3	41,3	39,3	34,8	36,8	36,3		− 6,94	6 . 22 . 30,43	G.
	☽ N.L. M..........	6 . 20	2 . 35,3	41,3	39,3	34,8	36,8	36,3	10,236	− 2,61 − 3,47	6 . 22 . 31,29	G.
	☽ N.L. M..........	6 . 20	2 . 35,3	41,3	39,3	34,8	36,8	36,3	10,410	− 6,15	6 . 22 . 31,22	G.
	☽ N.L. M..........	6 . 20	2 . 35,3	41,3	39,3	34,8	36,8	36,3	10,610	− 10,18 + 3,47	6 . 22 . 30,66	G.
	☽ N.L. M..........	6 . 20	2 . 35,3	41,3	39,3	34,8	36,8	36,3	10,791	− 13,91 + 6,94	6 . 22 . 30,40	G.
	η Tauri R. M.....	128 . 0	2 . 26,8	36,2	29,8	30,2	30,4	29,5	8,863	+ 26,11	128 . 2 . 56,66	G.
	η Tauri...........	5 . 15	0 . 0,2	7,3	7,1	3,0	5,0	2,9			5 . 15 . 4,25	G.
	Mars, center......	15 . 30	2 . 48,9	55,5	55,6	50,6	52,2	49,9			15 . 32 . 52,20	G.
Nov. 5	Mars, center......	16 . 0	4 . 17,1	23,4	21,0	17,8	18,9	17,0			16 . 4 . 19,32	G.

(a) Very faint.

(b) At the comb.

(c) At the five wires. The observation of Nov. 2 very satisfactory.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	- 13 . 36 . 17,08	29,686	42,6	40,5	14,29				24 . 10 . 36,91	∗Æ.$22^{h}.33^{m}.38^{s}$.
	- 13 . 27 . 5,13				14,12				24 . 19 . 49,03	∗Æ.$22^{h}.35^{m}.22^{s}$.
	61 . 15 . 0,22				1 . 47,18	0,38			99 . 3 . 55,30	Uranus.
	47 . 44 . 36,22	29,630	41,5	40,2	1 . 4,79				85 . 32 . 49,29	A.S.C. 79.
	45 . 10 . 28,32				59,25				82 . 58 . 35,85	ε Piscium.
1,06	- 36 . 13 . 34,53				43,16				1 . 32 . 50,59	Polaris R.
	- 36 . 13 . 34,62								1 . 32 . 50,50	Polaris.
	42 . 34 . 46,20	29,614	41,4	40,3					79 . 25 . 11,14	☽.
	42 . 34 . 46,62								79 . 25 . 11,56	☽.
	42 . 34 . 46,45				54,07	41 . 0,98		16 . 36,43	79 . 25 . 11,39	☽.
	42 . 34 . 46,32								79 . 25 . 11,26	☽.
	42 . 34 . 47,07								79 . 25 . 12,01	☽.
	54 . 9 . 13,42	29,312	47,0	46,8	1 . 19,46	1,10	8,695	14,91	91 . 57 . 54,97	Jupiter.
	- 13 . 27 . 4,28				13,81				24 . 19 . 50,19	∗Æ.$22^{h}.35^{m}.22^{s}$.
	61 . 15 . 18,82				1 . 44,83	0,38			99 . 4 . 11,55	Uranus.
	- 4 . 9 . 0,20		42,0	40,3	4,22				33 . 38 . 3,86	∗ Æ.$1^{h}.21^{m}.46^{s}$.
	- 0 . 53 . 19,47				0,90				36 . 53 . 47,91	∗ Æ.$1^{h}. 42^{m}. 1^{s}$.
	35 . 16 . 58,71			40,1					72 . 46 . 29,61	☽.
	35 . 16 . 59,79								72 . 46 . 30,69	☽.
	35 . 17 . 0,90				41,11	34 . 51,78		16 . 33,29	72 . 46 . 31,80	☽.
	35 . 16 . 59,90								72 . 46 . 30,80	☽.
	35 . 16 . 59,88								72 . 46 . 30,78	☽.
	3 . 40 . 7,97				3,73				41 . 27 . 19,98	θ Persei.
0,32	11 . 52 . 43,39		41,6	39,3	12,25				49 . 40 . 3,92	β Persei R.
	11 . 52 . 41,82								49 . 40 . 2,35	β Persei.
	33 . 5 . 17,27				37,93				70 . 53 . 3,48	δ Arietis.
1,25	2 . 55 . 46,83				2,98				40 . 42 . 58,09	α Persei R.
	2 . 55 . 47,12								40 . 42 . 58,38	α Persei.
	31 . 30 . 34,70	29,294	42,8	40,4	35,70				69 . 18 . 18,68	ε Arietis.
0,69	11 . 52 . 42,24				12,26				49 . 40 . 2,78	β Persei R.
	11 . 52 . 41,42								49 . 40 . 1,96	β Persei.
	33 . 5 . 17,63				37,95				70 . 53 . 3,86	δ Arietis.
1,69	2 . 55 . 46,50				2,98				40 . 42 . 57,76	α Persei R.
	2 . 55 . 47,67								40 . 42 . 58,93	α Persei.
	29 . 43 . 29,33	29,300	42,2	40,2					67 . 17 . 57,08	☽.
	29 . 43 . 30,19								67 . 17 . 57,94	☽.
	29 . 43 . 30,12				33,28	29 . 38,87		16 . 25,06	67 . 17 . 57,87	☽.
	29 . 43 . 29,56								67 . 17 . 57,31	☽.
	29 . 43 . 29,30								67 . 17 . 57,05	☽.
0,46	28 . 36 . 4,44				31,77				66 . 23 . 44,49	η Tauri R.
	28 . 36 . 3,15								66 . 23 . 43,20	η Tauri.
	38 . 53 . 51,10	29,386	41,5	38,4	47,32	3,25			76 . 41 . 43,45	Mars.
	39 . 25 . 18,22	29,584	43,4	40,2	48,35	3,33			77 . 13 . 11,52	Mars.

Coincidence of Micrometer Wire with fixed Wire $=10^{r}$,110, 10^{r},111, 10^{r},115, 10^{r},122, 10^{r},124 at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = + 0″,8.
Adopted Zenith Point = 336°. 39′. 1″,10.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Nov. 5	Jupiter N.L.	31 . 10	0 . 56,8	66,3	63,0	61,2	61,8	59,8			31 . 11 . 1,52	G.
	Polaris SP. R. M.	195 . 55	4 . 24,4	33,7	27,8	27,8	29,2	26,9	13,825	−1 . 17,38	195 . 58 . 11,04	G.
	Polaris SP.	297 . 15	4 . 51,2	57,2	54,8	51,3	52,5	50,2			297 . 19 . 53,00	G.
	Venus S.L.	40 . 15	3 . 58,4	69,1	64,4	62,7	64,8	61,0			40 . 19 . 3,52	G.
Nov. 6	(*a*) ⊙ S.L. M.	45 . 0	4 . 12,2	21,3	17,1	16,6	17,4	16,3	14,121	−1 . 23,55	45 . 2 . 53,38	G.
	⊙ N.L.	44 . 30	0 . 32,2	41,5	35,3	36,7	38,3	37,0			44 . 30 . 36,85	G.
Nov. 7	⊙ N.L. M.	44 . 50	0 . 12,8	23,0	16,8	18,2	17,8	17,6	15,032	−1 . 42,55	44 . 48 . 35,15	G.
	⊙ S.L.	45 . 20	0 . 46,6	57,7	50,8	51,1	51,4	49,0			45 . 20 . 51,12	G.
	Mars, center	16 . 25	0 . 15,0	21,0	18,9	16,6	18,3	17,0			16 . 25 . 17,80	G.
	(*b*) Jupiter N.L.	31 . 15	4 . 56,5	65,6	61,0	61,3	61,2	61,0			31 . 20 . 1,10	G.
	Polaris SP. R. M.	195 . 55	4 . 37,0	46,0	40,0	39,3	42,2	38,1	14,489	−1 . 31,22	195 . 58 . 9,33	G.
	Polaris SP.	297 . 15	4 . 48,9	57,1	52,8	50,0	51,9	48,9			297 . 19 . 51,73	G.
	Venus S.L.	41 . 10	2 . 13,7	23,5	17,5	17,8	19,0	15,9			41 . 12 . 17,97	G.
Nov. 8	⊙ S.L. M.	45 . 35	3 . 33,2	45,2	36,0	36,2	37,9	36,2	10,670	− 11,57	45 . 38 . 25,98	G.
	⊙ N.L.	45 . 5	1 . 4,2	15,2	9,0	9,3	9,3	7,3			45 . 6 . 9,08	G.
Nov. 9	✱ Æ. 21^h. 2^m. 38^s.	323 . 50	3 . 52,3	57,7	56,9	53,1	55,1	52,7			323 . 53 . 54,73	G.
	6 Cephei	324 . 40	0 . 26,2	29,8	29,8	26,3	28,4	27,8			324 . 40 . 28,07	G.
	(*c*) ✱ Æ. 22^h. 33^m. 38^s.	323 . 0	2 . 17,2	20,2	20,9	16,8	17,2	17,7	8,944	+ 24,43	323 . 2 . 42,83	G.
	✱ Æ. 22^h. 35^m. 22^s.	323 . 10	1 . 54,3	57,2	58,3	54,8	57,2	54,8			323 . 11 . 56,15	G.
	Uranus	37 . 55	0 . 49,8	58,2	54,5	53,7	53,6	53,7			37 . 55 . 53,93	G.
	ι Cephei	323 . 30	0 . 35,3	37,3	38,6	35,8	35,3	36,7			323 . 30 . 36,52	G.
	α Cassiopeiæ R. M.	160 . 5	0 . 35,2	43,2	40,3	41,0	41,3	40,0	10,620	− 10,53	160 . 5 . 29,65	G.
	α Cassiopeiæ	333 . 10	2 . 31,0	34,8	35,5	32,3	33,0	31,8			333 . 12 . 33,13	G.
	γ Cassiopeiæ R. M.	164 . 15	1 . 27,4	37,2	34,0	32,3	31,8	32,8	9,282	+ 17,37	164 . 16 . 49,99	G.
	γ Cassiopeiæ	329 . 0	1 . 12,0	15,0	15,3	13,0	10,8	13,0			329 . 1 . 13,22	G.
	Polaris R. M.	192 . 50	1 . 20,7	28,4	25,0	26,2	24,8	25,0	6,558	+1 . 14,19	192 . 52 . 39,24	G.
	Polaris	300 . 25	0 . 21,3	24,7	22,8	20,5	18,7	21,4			300 . 25 . 21,57	G.
	(*d*) ☽ S.L.	15 . 40	3 . 55,2	63,3	63,3	57,2	62,2	56,0		+ 7,46	15 . 44 . 7,09	G.
	☽ S.L. M.	15 . 40	3 . 55,2	63,3	63,3	57,2	62,2	56,0	9,948	+ 3,40 + 3,73	15 . 44 . 6,76	G.
	☽ S.L. M.	15 . 40	3 . 55,2	63,3	63,3	57,2	62,2	56,0	9,750	+ 7,61	15 . 44 . 7,24	G.
	☽ S.L. M.	15 . 40	3 . 55,2	63,3	63,3	57,2	62,2	56,0	9,575	+ 11,41 − 3,73	15 . 44 . 7,31	G.
	☽ S.L. M.	15 . 40	3 . 55,2	63,3	63,3	57,2	62,2	56,0	9,348	+ 16,19 − 7,46	15 . 44 . 8,36	G.
	Mars, center	16 . 45	1 . 8,3	17,0	14,8	12,4	13,2	11,8			16 . 46 . 12,95	G.
	(*e*) Jupiter N.L.	31 . 25	3 . 42,5	51,8	48,4	44,8	46,9	45,0			31 . 28 . 46,67	G.
	Polaris SP. R. M.	195 . 55	4 . 31,0	39,1	34,5	33,8	35,7	32,0	14,242 13 . 3 . 45	−1 . 26,08 + 0,14	195 . 58 . 8,53	G.
	Polaris SP.	297 . 15	4 . 53,0	59,2	57,2	53,8	54,3	52,3	13 . 4 . 5	− 0,21	297 . 19 . 54,89	G.
	Venus S.L.	42 . 0	4 . 13,9	24,8	20,7	17,4	19,7	16,8			42 . 4 . 19,00	G.
Nov. 10	Uranus	37 . 55	0 . 56,2	66,3	61,2	60,3	60,4	59,3			37 . 56 . 0,65	G.
	ι Cephei	323 . 30	0 . 35,6	40,2	38,7	36,3	35,4	36,1			323 . 30 . 37,07	G.
Nov. 11	(*f*) Venus S.L.	42 . 50	4 . 55,0	65,0	61,2	58,2	60,0	57,1			42 . 54 . 59,42	G.
Nov. 12	(*g*) ⊙ S.L. M.	46 . 45	1 . 21,2	30,2	26,3	24,3	25,2	24,2	11,455	− 27,95	46 . 45 . 57,32	G.
	⊙ N.L.	46 . 10	3 . 34,8	45,8	40,3	38,0	40,7	37,8			46 . 13 . 39,67	G.
	(*h*) ✱ Æ. 21^h. 2^m. 38^s.	323 . 50	3 . 55,2	60,6	58,9	55,6	55,2	55,3			323 . 53 . 56,90	G.
	6 Cephei	324 . 40	0 . 28,3	31,6	31,0	29,8	28,8	30,3			324 . 40 . 29,98	G.

Nov. 9, 22^h. Molyneux fast on Hardy, 0^m. 12^s,8.

(*a*) Badly defined.
(*b*) Faint. No correction for runs.
(*c*) Exceedingly faint and doubtful.
(*d*) At the five wires. Uneven limb.

(*e*) Very faint.
(*f*) No correction for runs.
(*g*) Limbs waving.
(*h*) Pretty good bisection.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N.P.D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
"	° ′ "	Inch.	°	°	′ "	′ "	r	′ "	° ′ "	
	54 . 32 . 0,42	29,638	43,2	42,7	1 . 22,15	1,12	8,677	15,00	92 . 20 . 44,73	Jupiter.
2,02	– 39 . 19 . 9,94	29,650	43,8	43,8	47,92				– 1 . 32 . 49,58	Polaris SP. R.
	– 39 . 19 . 8,10								– 1 . 32 . 47,74	Polaris SP.
	63 . 40 . 2,42		45,0	46,1	1 . 57,18	4,58	10,660	5,70	101 . 28 . 57,60	Venus.
	68 . 23 . 52,28	29,646	45,8	47,7	2 . 25,57	8,03		16 . 10,10	105 . 57 . 8,00	☉.
	67 . 51 . 35,75				2 . 21,73	8,00			105 . 57 . 7,86	☉.
	68 . 9 . 34,05	29,350	54,8	57,3	2 . 19,63	8,02		16 . 10,30	106 . 15 . 4,24	☉.
	68 . 41 . 50,02				2 . 23,47	8,04			106 . 15 . 3,43	☉.
	39 . 46 . 16,70	29,400	50,4	48,8	47,80	3,39			77 . 34 . 9,39	Mars.
	54 . 41 . 0,00	29,428	50,0	49,8	1 . 20,84	1,12	8,731	14,44	92 . 29 . 42,44	Jupiter.
0,53	– 39 . 19 . 8,23	29,442	50,6	50,7	46,91				– 1 . 32 . 46,86	Polaris SP. R.
	– 39 . 19 . 9,37								– 1 . 32 . 48,00	Polaris SP.
	64 . 33 . 16,87	29,464	52,8	53,2	1 . 59,33	4,60	10,643	5,53	102 . 22 . 14,35	Venus.
	68 . 59 . 24,88	29,460	53,2	53,6	2 . 27,29	8,06		16 . 10,60	106 . 32 . 41,79	☉.
	68 . 27 . 7,98				2 . 23,31	8,03			106 . 32 . 42,14	☉.
	– 12 . 45 . 6,37	29,366	46,8	45,2	13,08				25 . 1 . 48,83	∗AR.21^{h}.2^{m}.38^{s}.
	– 11 . 58 . 33,03				12,27				25 . 48 . 22,98	6 Cephei.
	– 13 . 36 . 18,27	29,384	44,7	43,4	14,06				24 . 10 . 35,95	∗AR.22^{h}.33^{m}.38^{s}.
	– 13 . 27 . 4,95				13,89				24 . 19 . 49,44	∗AR.22^{h}.35^{m}.22^{s}.
	61 . 16 . 52,83				1 . 45,59	0,38			99 . 5 . 46,32	Uranus.
	– 13 . 8 . 24,58				13,56				24 . 38 . 30,14	ι Cephei.
1,39	– 3 . 26 . 28,55	29,414	44,0	43,2	3,50				34 . 20 . 36,23	α Cassiopeiæ R.
	– 3 . 26 . 27,97								34 . 20 . 36,81	α Cassiopeiæ.
1,61	– 7 . 37 . 48,89				7,79				30 . 9 . 11,60	γ Cassiopeiæ R.
	– 7 . 37 . 47,88								30 . 9 . 12,61	γ Cassiopeiæ.
0,41	– 36 . 13 . 38,14				42,58				1 . 32 . 47,56	Polaris R.
	– 36 . 13 . 39,53								1 . 32 . 46,17	Polaris.
	39 . 5 . 5,99	29,562	44,4	42,3					76 . 3 . 56,91	☽.
	39 . 5 . 5,66								76 . 3 . 56,58	☽.
	39 . 5 . 6,14				47,53	34 . 12,57		14 . 52,32	76 . 3 . 57,06	☽.
	39 . 5 . 6,21								76 . 3 . 57,13	☽.
	39 . 5 . 7,26								76 . 3 . 58,18	☽.
	40 . 7 . 11,85				49,31	3,46			77 . 55 . 5,98	Mars.
	54 . 49 . 45,57	29,606	43,0	42,2	1 . 23,06	1,13	8,490	16,94	92 . 38 . 32,72	Jupiter.
1,71	– 39 . 19 . 7,43	29,614	43,8	43,6	47,88				– 1 . 32 . 47,03	Polaris SP. R.
	– 39 . 19 . 6,21								– 1 . 32 . 45,81	Polaris SP.
	65 . 25 . 17,90	29,630	46,6	46,9	2 . 6,40	4,63	10,662	5,72	103 . 14 . 22,23	Venus.
	61 . 16 . 59,55	29,692	43,8	42,2	1 . 46,97	0,38			99 . 5 . 54,42	Uranus.
	– 13 . 8 . 24,03				13,73				24 . 38 . 30,52	ι Cephei.
	66 . 15 . 58,32	30,086	41,0	41,2	2 . 15,05	4,65	10,610	5,17	104 . 5 . 11,83	Venus.
	70 . 6 . 56,22	30,094	41,8	42,2	2 . 43,41	8,13		16 . 11,40	107 . 40 . 28,38	☉.
	69 . 34 . 38,57				2 . 38,81	8,10			107 . 40 . 28,96	☉.
	– 12 . 45 . 4,20	30,206	40,5	38,8	13,64				25 . 1 . 50,44	∗AR.21^{h}.2^{m}.38^{s}.
	– 11 . 58 . 31,12				12,78				25 . 48 . 24,38	6 Cephei.

Coincidence of Micrometer Wire with fixed Wire = 10^{r},110, 10^{r},111, 10^{r},115, 10^{r},122, 10^{r},124 at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = + 0″,8.
Adopted Zenith Point = 336°. 39′. 1″,10.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Nov. 12	β Aquarii R. M...	98 . 10	1 . 35,9	43,8	39,6	39,0	38,6	38,0	11,504	− 28,98	98 . 11 . 10,22	G.
	β Aquarii.........	35 . 5	1 . 47,2	56,1	53,9	49,7	51,1	50,3			35 . 6 . 51,43	G.
	β Cephei R. M....	174 . 15	1 . 44,8	53,5	51,2	50,1	48,3	48,7	8,571	+ 32,20	174 . 17 . 21,68	G.
	β Cephei..........	319 . 0	0 . 40,9	45,0	44,8	42,8	40,9	42,6			319 . 0 . 42,85	G.
	Uranus...........	37 . 55	1 . 2,8	10,2	7,6	6,8	5,5	7,0			37 . 56 . 6,68	G.
	(a) ⁎ Æ. 1^h. 41^m. 17^s.	335 . 45	2 . 42,5	47,4	46,9	44,0	43,9	42,8			335 . 47 . 44,65	G.
	⁎ Æ. 1^h. 42^m. 1^s. M.	335 . 45	2 . 42,5	47,4	46,9	44,0	43,9	42,8	16,155	−2 . 5,96	335 . 45 . 38,69	G.
	Mars, center......	17 . 15	2 . 22,7	31,8	27,7	25,8	24,4	25,7			17 . 17 . 26,42	G.
	Jupiter S.L.......	31 . 40	2 . 11,5	20,1	17,8	13,6	15,8	14,4			31 . 42 . 15,60	G.
	Venus S.L........	43 . 15	4 . 42,3	52,5	48,8	45,4	49,7	44,8			43 . 19 . 47,38	G.
Nov. 13	(b) ⊙ N.L.	46 . 25	4 . 41,5	52,2	48,4	43,8	46,1	43,6			46 . 29 . 46,07	G.
	⊙ S.L.............	47 . 0	2 . 0,0	9,3	6,9	3,6	3,6	1,8			47 . 2 . 4,25	G.
	(c) Mercury, center...	48 . 50	1 . 13,8	23,3	19,0	18,0	18,9	17,0			48 . 51 . 18,37	G.
	6 Cephei.........	324 . 40	0 . 26,7	30,8	30,0	27,8	28,2	29,8			324 . 40 . 28,90	G.
	β Aquarii R. M...	98 . 10	1 . 33,8	42,2	38,7	36,8	38,4	35,4	11,387	− 26,53	98 . 11 . 11,07	G.
	β Aquarii.........	35 . 5	1 . 46,8	55,2	53,3	48,6	53,2	49,0			35 . 6 . 51,07	G.
	β Cephei R. M....	174 . 15	1 . 43,8	53,8	50,6	48,2	50,0	46,4	8,602	+ 31,56	174 . 17 . 20,41	G.
	β Cephei..........	319 . 0	0 . 41,2	47,0	45,5	42,9	43,4	42,3			319 . 0 . 43,73	G.
	⁎ Æ. 22^h. 33^m. 38^s.	323 . 0	2 . 38,3	43,2	41,0	38,4	39,7	39,0			323 . 2 . 40,00	G.
	⁎ Æ. 22^h. 35^m. 22^s.	323 . 10	1 . 54,7	59,8	58,8	56,0	57,8	54,8			323 . 11 . 57,03	G.
	Uranus.:.........	37 . 55	1 . 7,8	18,0	13,8	10,8	12,8	11,2			37 . 56 . 12,43	G.
	ι Cephei	323 . 30	0 . 36,0	40,8	39,8	36,6	38,2	37,3			323 . 30 . 38,13	G.
	⁎ Æ. 23^h. 53^m. 38^s.	324 . 15	3 . 27,8	34,0	31,6	26,5	28,8	28,3			324 . 18 . 29,60	G.
	⁎ Æ. 23^h. 56^m. 54^s.	324 . 55	3 . 44,7	53,2	51,7	45,9	48,8	45,1			324 . 58 . 48,33	G.
	⁎ Æ. 23^h. 58^m. 7^s.	325 . 30	3 . 50,7	58,7	56,9	50,2	54,8	51,4			325 . 33 . 53,88	G.
	(d) Mars, center......	17 . 25	2 . 44,8	55,6	53,1	47,0	50,0	46,8			17 . 27 . 49,62	G.
	Arcturus R. M....	124 . 25	4 . 18,8	28,4	24,8	21,3	23,9	19,9	13,440	−1 . 9,35	124 . 28 . 13,62	G.
	Arcturus.........	8 . 45	4 . 45,0	52,0	53,9	45,2	50,1	44,7			8 . 49 . 48,62	G.
	Venus S.L........	43 . 40	4 . 11,4	22,1	18,2	14,3	17,7	13,9			43 . 44 . 16,38	G.
Nov. 14	(e) ⊙ S.L. M.........	47 . 15	3 . 22,5	31,9	27,0	24,0	27,9	24,8	11,628	− 31,56	47 . 17 . 54,87	G.
	⊙ N.L............	46 . 45	0 . 33,5	42,0	39,3	37,3	38,0	36,2			46 . 45 . 37,73	G.
	(f) Mercury, center ..	49 . 15	4 . 10,3	20,0	16,5	14,0	17,2	13,0			49 . 19 . 15,28	G.
	⁎ Æ. 21^h. 2^m. 38^s.	323 . 50	3 . 53,4	59,0	60,0	54,7	57,6	53,8			323 . 53 . 56,52	G.
Nov. 22	Uranus............	37 . 55	0 . 53,3	62,2	59,5	57,8	58,9	56,8			37 . 55 . 58,07	G.
	β Persei R. M. ...	144 . 45	2 . 18,2	28,0	24,8	22,5	24,8	23,0	13,132	−1 . 2,99	144 . 46 . 20,53	G.
	β Persei	348 . 30	1 . 35,7	40,5	41,8	37,0	40,7	38,4			348 . 31 . 39,00	G.
	α Persei R. M. ...	153 . 40	3 . 20,0	29,0	28,2	24,0	27,9	24,7	10,459	− 7,24	153 . 43 . 18,34	G.
	α Persei	339 . 30	4 . 40,0	46,0	46,8	41,0	45,5	42,1			339 . 34 . 43,50	G.
	η Tauri R. M......	128 . 0	2 . 16,9	26,0	22,1	21,1	21,0	19,9	8,380	+ 36,13	128 . 2 . 57,26	G.
	(g) η Tauri	5 . 10	4 . 59,0	63,9	66,5	60,0	63,8	61,3			5 . 15 . 2,42	G.
Nov. 24	α Cephei R. M....	166 . 15	4 . 19,5	29,3	28,1	22,8	26,1	23,0	7,063	+1 . 3,59	166 . 20 . 28,32	G.
	α Cephei.........	326 . 55	2 . 32,1	37,3	38,1	31,9	34,8	34,5			326 . 57 . 34,75	G.
	β Aquarii R. M...	98 . 10	1 . 19,9	28,3	23,8	22,6	21,6	22,8	10,739	− 13,08	98 . 11 . 10,07	G.
	β Aquarii.........	35 . 5	1 . 47,5	58,0	45,6	49,9	55,0	51,9			35 . 6 . 51,30	G.
	β Cephei R. M....	174 . 15	1 . 50,2	58,8	58,8	54,3	56,9	54,8	8,934	+ 24,58	174 . 17 . 20,18	G.
	β Cephei.........	319 . 0	0 . 41,0	45,0	45,2	40,4	43,4	41,9			319 . 0 . 42,80	G.

Coincidences at the five wires and Runs taken Nov. 29, 22^h. (Therm. 49°.)

(a) A star of about the 8th magnitude: it passed the fifth wire 11^s after the following star passed the middle wire.

(b) N.L. came on fixed wire: neither limb satisfactorily observed.

(c) Flashing, but faint.

(d) Indistinct.

(e) Limbs misty.

(f) Very faint.

(g) No correction for runs.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
0,83	58 . 27 . 50,88	30,206	40,5	38,8	1 . 37,92				96 . 16 . 37,08	β Aquarii R.
	58 . 27 . 50,33								96 . 16 . 36,53	β Aquarii.
2,27	– 17 . 38 . 20,58				19,16				20 . 8 . 28,54	β Cephei R.
	– 17 . 38 . 18,25								20 . 8 . 30,87	β Cephei.
	61 . 17 . 5,58	30,240	38,6	37,4	1 . 50,03	0,38			99 . 6 . 3,51	Uranus.
	– 0 . 51 . 16,45	30,288	36,6	34,6	0,91				36 . 55 . 50,92	∗ Æ. $1^{h}.41^{m}.17^{s}$.
	– 0 . 53 . 22,41				0,95				36 . 53 . 44,92	∗ Æ. $1^{h}. 42^{m}. 1^{s}$.
	40 . 38 . 25,32	30,344	37,3	32,3	52,64	3,55			78 . 26 . 22,69	Mars.
	55 . 3 . 14,50	30,372	35,6	33,0	1 . 27,58	1,14	11,620	15,70	92 . 51 . 33,52	Jupiter.
	66 . 40 . 46,28		38,3	37,8	2 . 20,00	4,66	10,648	5,57	104 . 30 . 4,33	Venus.
	69 . 50 . 44,97	30,370	39,0	39,3	2 . 43,54	8,12		16 . 11,60	107 . 56 . 40,27	☉.
	70 . 23 . 3,15				2 . 48,33	8,15			107 . 56 . 40,01	☉.
	72 . 12 . 17,27				3 . 6,53	5,65			110 . 2 . 26,43	Mercury.
	– 11 . 58 . 32,20	30,320	39,5	38,0	12,85				25 . 48 . 23,23	6 Cephei.
1,07	58 . 27 . 50,03				1 . 38,45				96 . 16 . 36,76	β Aquarii R.
	58 . 27 . 49,97								96 . 16 . 36,70	β Aquarii.
2,07	– 17 . 38 . 19,31				19,27				20 . 8 . 29,70	β Cephei R.
	– 17 . 38 . 17,37								20 . 8 . 31,64	β Cephei.
	– 13 . 36 . 21,10		38,0	36,5	14,71				24 . 10 . 32,47	∗Æ. $22^{h}.33^{m}.38^{s}$.
	– 13 . 27 . 4,07				14,54				24 . 19 . 49,67	∗Æ. $22^{h}.35^{m}.22^{s}$.
	61 . 17 . 11,33				1 . 50,55	0,38			99 . 6 . 9,78	Uranus.
	– 13 . 8 . 22,97				14,19				24 . 38 . 31,12	ι Cephei.
	– 12 . 20 . 31,50	30,314	37,0	35,6	13,32				25 . 26 . 23,46	∗Æ. $23^{h}.53^{m}.38^{s}$.
	– 11 . 40 . 12,77				12,58				26 . 6 . 42,93	∗Æ. $23^{h}.56^{m}.54^{s}$.
	– 11 . 5 . 7,22				11,93				26 . 41 . 49,13	∗ Æ. $23^{h}. 58^{m}.7^{s}$.
	40 . 48 . 48,52	30,222	35,0	30,2	52,98	3,58			78 . 36 . 46,20	Mars.
1,12	32 . 10 . 47,48	30,178	36,3	36,1	38,09				69 . 58 . 33,85	Arcturus R.
	32 . 10 . 47,52								69 . 58 . 33,89	Arcturus.
	67 . 5 . 15,28	30,170	7,6	38,2	2 . 21,71	4,67	10,660	5,69	104 . 54 . 34,91	Venus.
	70 . 38 . 53,77	30,156	38,7	39,7	2 . 49,42	8,16		16 . 11,80	108 . 12 . 31,51	☉.
	70 . 6 . 36,63				2 . 44,56	8,13			108 . 12 . 33,14	☉.
	72 . 40 . 14,18	30,146	39,4	41,0	3 . 9,67	5,68			110 . 30 . 26,45	Mercury.
	– 12 . 45 . 4,58	30,054	40,0	39,2	13,56				25 . 1 . 50,14	∗ Æ. $21^{h}.2^{m}.38^{s}$.
	61 . 16 . 56,97	29,246	43,0	43,0	1 . 45,19	0,38			99 . 5 . 50,06	Uranus.
59,77	11 . 52 . 40,57	29,314	41,4	39,6	12,28				49 . 40 . 1,13	β Persei R.
	11 . 52 . 37,90								49 . 39 . 58,46	β Persei.
60,92	2 . 55 . 42,76				2,99				40 . 42 . 54,03	α Persei R.
	2 . 55 . 42,40								40 . 42 . 53,67	α Persei.
59,84	28 . 36 . 3,84	29,320	40,5	38,3	31,92				66 . 23 . 44,04	η Tauri R.
	28 . 36 . 1,32								66 . 23 . 41,52	η Tauri.
61,54	– 9 . 41 . 27,22	29,656	36,3	34,7	10,19				28 . 5 . 30,87	α Cephei R.
	– 9 . 41 . 26,35								28 . 5 . 31,74	α Cephei.
60,69	58 . 27 . 51,03				1 . 36,97				96 . 16 . 36,28	β Aquarii R.
	58 . 27 . 50,20								96 . 16 . 35,45	β Aquarii.
61,49	– 17 . 38 . 19,08				18,98				20 . 8 . 30,22	β Cephei R.
	– 17 . 38 . 18,30								20 . 8 . 31,00	β Cephei.

Coincidence of Micrometer Wire with fixed Wire = 10^{r},115 at the middle Wire. From Nov. 22 = 10^{r},108, 10^{r},110, 10^{r},112, 10^{r},119, 10^{r},122 at the five wires.

One Micrometer Revolution = 20″,855.

Correction for Runs = + 0″,8. From Nov. 22 = – 0″,4.

Adopted Zenith Point = 336°. 39′. 1″,10.

Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Nov. 24	(*a*) ☽ S.L.	43 . 10	3 . 48,0	58,8	55,8	50,2	55,9	52,5		- 8,78	43 . 13 . 44,70	G.
	☽ S.L. M.	43 . 10	3 . 48,0	58,8	55,8	50,2	55,9	52,5	10,332	- 4,61 - 4,39	43 . 13 . 44,48	G.
	☽ S.L. M.	43 . 10	3 . 48,0	58,8	55,8	50,2	55,9	52,5	10,552	- 9,17	43 . 13 . 44,31	G.
	☽ S.L. M.	43 . 10	3 . 48,0	58,8	55,8	50,2	55,9	52,5	10,754	- 13,24 + 4,39	43 . 13 . 44,63	G.
	☽ S.L. M.	43 . 10	3 . 48,0	58,8	55,8	50,2	55,9	52,5	10,953	- 17,33 + 8,78	43 . 13 . 44,93	G.
	Uranus	37 . 55	0 . 30,4	39,0	36,2	32,8	34,8	35,2			37 . 55 . 34,73	G.
	λ Aquarii	37 . 15	1 . 9,6	18,9	15,6	10,5	15,0	13,2			37 . 16 . 13,78	G.
Nov. 26	(*b*) ⊙ S.L. M.	50 . 0	1 . 36,7	46,0	41,4	38,8	41,3	40,6	11,389	- 26,64	50 . 1 . 14,14	G.
	⊙ N.L.	49 . 25	3 . 49,0	61,5	55,0	50,9	54,6	52,2			49 . 28 . 53,82	G.
	Uranus	37 . 50	5 . 7,6	19,3	14,5	10,4	14,4	11,6			37 . 55 . 12,90	C.
Nov. 29	⊙ N.L. M.	50 . 0	2 . 24,9	36,5	30,0	29,3	32,6	29,0	13,182	-1 . 4,03	50 . 1 . 26,32	G.
	⊙ S.L.	50 . 30	3 . 44,8	56,1	50,0	48,0	53,1	49,0			50 . 33 . 50,12	G.
	(*c*) ☽ S.L.	9 . 30	3 . 36,2	46,0	44,4	39,0	44,2	39,8		- 7,78	9 . 33 . 33,77	G.
	☽ S.L. M	9 . 30	3 . 36,2	46,0	44,4	39,0	44,2	39,8	10,277	- 3,47 - 3,89	9 . 33 . 34,19	G.
	☽ S.L. M	9 . 30	3 . 36,2	46,0	44,4	39,0	44,2	39,8	10,470	- 7,47	9 . 33 . 34,08	G.
	☽ S.L. M	9 . 30	3 . 36,2	46,0	44,4	39,0	44,2	39,8	10,702	- 12,16 + 3,89	9 . 33 . 33,28	G.
	☽ S.L. M	9 . 30	3 . 36,2	46,0	44,4	39,0	44,2	39,8	10,871	- 15,62 + 7,78	9 . 33 . 33,71	G.
	η Tauri	5 . 10	4 . 58,5	66,0	67,3	60,2	65,2	60,0			5 . 15 . 2,80	G.
Nov. 30	(*d*) ⊙ S.L. M.	50 . 45	0 . 17,2	29,0	22,3	21,7	22,4	22,0	14,698	- 1 . 35,65	50 . 43 . 46,78	G.
	⊙ N.L.	50 . 10	1 . 20,2	32,0	24,2	24,6	26,7	24,8			50 . 11 . 25,40	G.
	Uranus	37 . 50	4 . 15,0	26,8	19,8	18,0	20,8	19,8			37 . 54 . 19,98	G.
	η Tauri	5 . 10	4 . 57,5	67,3	66,3	58,3	66,2	60,4			5 . 15 . 2,60	G.
	(*e*) ☽ S.L. M.	4 . 45	4 . 31,8	40,2	37,8	32,4	37,0	33,1	4,793	+ 1 . 50,85 - 5,68	4 . 51 . 20,49	G.
	☽ S.L. M.	4 . 45	4 . 31,8	40,2	37,8	32,4	37,0	33,1	4,920	+ 1 . 48,27 - 2,84	4 . 51 . 20,75	G.
	☽ N.L.	4 . 15	3 . 9,8	18,8	17,3	11,8	18,3	13,4			4 . 18 . 14,85	G.
	☽ N.L. M	4 . 15	3 . 9,8	18,8	17,3	11,8	18,3	13,4	10,262	- 2,97 + 2,84	4 . 18 . 14,72	G.
	☽ N.L. M	4 . 15	3 . 9,8	18,8	17,3	11,8	18,3	13,4	10,426	- 6,34 + 5,68	4 . 18 . 14,19	G.
	υ^1 Tauri	6 . 20	4 . 31,5	42,0	39,7	31,5	39,8	34,8			6 . 24 . 36,48	G.
	τ Tauri	6 . 10	2 . 34,3	45,5	40,8	34,2	40,2	36,9			6 . 12 . 38,62	G.
	(*f*) Capella R. M.	150 . 15	1 . 28,1	41,8	34,8	32,8	38,3	34,5	11,947	- 38,27	150 . 15 . 56,76	G.
	Capella	343 . 0	1 . 58,9	67,8	66,2	60,8	66,8	62,2			343 . 2 . 3,75	G.
	Mars, center	20 . 15	3 . 14,0	26,8	20,2	17,5	22,0	19,1			20 . 18 . 19,88	G.
Dec. 1	(*b*) ⊙ N.L. M.	50 . 20	2 . 23,7	34,3	28,1	27,2	30,1	28,0	14,760	- 1 . 36,93	50 . 20 . 51,60	G.
	⊙ S.L.	50 . 50	3 . 11,8	21,3	16,3	15,1	18,0	15,5			50 . 53 . 16,28	G.

(*a*) At the five wires. Very satisfactory.
(*b*) Very misty and indistinct.
(*c*) At the five wires.
(*d*) Very misty.
(*e*) At the five wires. S.L. rough. Correction applied for defect of illumination = + 1″,15.
(*f*) All the shutters closed but that required for the observation, and yet the mercury was much disturbed by wind.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
"	° ′ "	Inch.	°	°	′ "	′ "	r	′ "	° ′ "	
	66 . 34 . 43,60	29,680	35,2	32,8					103 . 14 . 25,53	☽.
	66 . 34 . 43,38								103 . 14 . 25,31	☽.
	66 . 34 . 43,21				2 . 17,62	53 . 43,64		16 . 0,33	103 . 14 . 25,14	☽.
	66 . 34 . 43,53								103 . 14 . 25,46	☽.
	66 . 34 . 43,83								103 . 14 . 25,76	☽.
	61 . 16 . 33,63				1 . 49,02	0,38			99 . 5 . 30,55	Uranus.
	60 . 37 . 12,68				1 . 46,15				98 . 26 . 7,11	λ Aquarii.
	73 . 22 . 14,25	29,844	37,0	37,1	3 . 17,60	8,31		16 . 14,20	110 . 56 . 17,62	⊙.
	72 . 49 . 53,93				3 . 11,17	8,29			110 . 56 . 19,29	⊙.
	61 . 16 . 13,01	29,826	35,8	34,2	1 . 49,22	0,38			99 . 5 . 10,13	Uranus.
	73 . 22 . 26,43	28,540	47,6	49,8	3 . 4,05	8,31		16 . 14,70	111 . 28 . 45,15	⊙.
	73 . 54 . 50,23				3 . 10,41	8,34			111 . 28 . 45,88	⊙.
	32 . 54 . 33,88	28,674	45,5	47,2					69 . 53 . 33,46	☽.
	32 . 54 . 34,30								69 . 53 . 33,88	☽.
	32 . 54 . 34,19				36,38	32 . 23,53		16 . 21,55	69 . 53 . 33,77	☽.
	32 . 54 . 33,39								69 . 53 . 32,97	☽.
	32 . 54 . 33,82								69 . 53 . 33,40	☽.
	28 . 36 . 2,91	28,680	46,6	46,6	30,70				66 . 23 . 41,89	η Tauri.
	74 . 4 . 46,89	28,878	50,4	50,5	3 . 14,41	8,35		16 . 14,80	111 . 38 . 46,43	⊙.
	73 . 32 . 25,51				3 . 7,88	8,32			111 . 38 . 48,15	⊙.
	61 . 15 . 20,09	29,020	46,6	47,4	1 . 43,32	0,37			99 . 4 . 11,32	Uranus.
	28 . 36 . 2,71	29,178	47,2	47,1	31,20				66 . 23 . 42,19	η Tauri.
	28 . 12 . 20,60				30,69	27 . 59,35			65 . 15 . 44,29	☽.
	28 . 12 . 20,86								65 . 15 . 44,55	☽.
	27 . 39 . 14,96							16 . 15,93	65 . 15 . 40,31	☽.
	27 . 39 . 14,83				29,98	27 . 28,84			65 . 15 . 40,18	☽.
	27 . 39 . 14,30								65 . 15 . 39,65	☽.
	29 . 45 . 36,59	29,182	47,5	47,0	32,73				67 . 33 . 17,60	υ^1 Tauri.
	29 . 33 . 38,73				32,46				67 . 21 . 19,47	τ Tauri.
60,26	6 . 23 . 3,13	29,200	47,0	46,6	6,42				44 . 10 . 17,83	Capella R.
	6 . 23 . 3,86								44 . 10 . 18,56	Capella.
	43 . 39 . 19,99	29,330	46,5	46,4	54,91	4,20			81 . 27 . 18,98	Mars.
	73 . 41 . 51,71	29,450	48,2	48,1	3 . 14,44	8,33		16 . 15,00	111 . 48 . 21,10	⊙.
	74 . 14 . 16,39				3 . 21,28	8,37			111 . 48 . 22,58	⊙.

Coincidence of Micrometer Wire with fixed Wire = 10r,108, 10r,110, 10r,112, 10r,119, 10r,122 at the five wires.
One Micrometer Revolution = 20″,855.
Correction for Runs = – 0″,4.
Adopted Zenith point = 336°. 39′. 1″,10. From Nov. 26 = 336°. 38′. 59″,89.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Dec. 2	(*a*) ☽ N.L. M.	0 . 25	4 . 14,4	25,0	23,8	15,5	23,2	15,8	10,772	– 13,84 + 0,26	0 . 29 . 5,99	G.
	☽ N.L. M.	0 . 25	4 . 14,4	25,0	23,8	15,5	23,2	15,8	10,760	– 13,53 + 0,13	0 . 29 . 6,17	G.
	☽ N.L. M.	0 . 25	4 . 14,4	25,0	23,8	15,5	23,2	15,8	10,734	– 12,97	0 . 29 . 6,60	G.
	☽ N.L. M.	0 . 25	4 . 14,4	25,0	23,8	15,5	23,2	15,8	10,752	– 13,20 – 0,13	0 . 29 . 6,24	G.
	☽ N.L. M.	0 . 25	4 . 14,4	25,0	23,8	15,5	23,2	15,8	10,740	– 12,89 – 0,26	0 . 29 . 6,42	G.
	Mars, center	20 . 35	2 . 12,0	23,8	18,4	15,8	18,5	15,8			20 . 37 . 17,35	G.
Dec. 3	⊙ N.L. M.	50 . 40	0 . 27,2	37,1	30,8	31,3	32,3	31,8	15,136	– 1 . 44,83	50 . 38 . 46,92	G.
	⊙ S.L.	51 . 10	1 . 5,1	14,5	9,4	9,2	9,2	8,0			51 . 11 . 9,22	G.
	α Cephei R. M.	166 . 15	4 . 10,6	20,3	17,3	13,3	16,0	12,5	6,688	+ 1 . 11,41	166 . 20 . 26,36	G.
	α Cephei	326 . 55	2 . 32,0	36,0	34,3	31,0	33,8	32,8			326 . 57 . 33,28	G.
	Uranus	37 . 50	3 . 22,0	29,7	25,2	22,8	27,1	23,8			37 . 53 . 25,05	G.
	γ Cephei R. M.	181 . 5	4 . 18,2	28,3	25,0	21,5	23,8	22,8	8,245	+ 38,94	181 . 10 . 2,14	G.
	γ Cephei	312 . 5	2 . 57,2	61,8	60,8	57,0	56,3	56,3			312 . 7 . 58,20	G.
	Jupiter N.L.	33 . 0	3 . 46,2	57,0	51,2	48,5	51,8	49,0			33 . 3 . 50,57	G.
	Polaris SP. R. M.	195 . 55	4 . 19,2	28,2	23,2	23,0	22,2	21,0	14,060	– 1 . 22,34	195 . 58 . 0,39	G.
	Polaris SP.	297 . 15	4 . 60,7	65,8	64,4	59,2	59,7	57,3			297 . 20 . 1,12	G.
	(*b*) Venus S.L.	50 . 15	1 . 42,0	52,9	47,0	46,8	46,0	45,4			50 . 16 . 46,67	G.
Dec. 4	(*c*) ⊙ S.L. M.	51 . 20	1 . 33,0	42,4	37,0	36,5	35,8	35,8	16,458	– 2 . 12,35	51 . 19 . 24,38	G.
	⊙ N.L.	50 . 45	2 . 0,5	8,9	5,1	4,1	3,3	2,3			50 . 47 . 4,00	G.
	Uranus	37 . 50	2 . 58,5	68,2	63,0	61,8	63,0	61,2			37 . 53 . 2,58	G.
	(*d*) ∗ Æ. 1^{h}. 21^{m}. 46^{s}.	332 . 25	4 . 54,7	60,8	60,0	55,9	55,8	54,1			332 . 29 . 56,82	G.
	∗ Æ 1^{h}. 42^{m}. 1^{s}.	335 . 45	0 . 32,0	35,8	35,9	33,0	32,0	33,0			335 . 45 . 33,62	G.
	α Arietis R. M.	127 . 5	4 . 16,1	25,9	21,3	20,2	18,8	17,4	11,833	– 35,90	127 . 8 . 44,00	G.
	α Arietis	6 . 5	4 . 12,0	17,5	17,9	10,8	14,4	11,0			6 . 9 . 13,88	G.
	(*e*) β Ursæ Min. SP. R. M.	209 . 35	1 . 18,1	28,3	22,7	24,5	20,3	22,3	10,421	– 6,45	209 . 36 . 16,23	G.
	(*f*) β Ursæ Min. SP.	283 . 40	1 . 43,8	50,2	45,9	45,0	42,8	44,8		– 0,55	283 . 41 . 44,85	G.
	α Persei R. M.	153 . 40	3 . 16,0	24,7	21,3	20,5	19,0	18,2	10,028	+ 1,75	153 . 43 . 21,65	G.
	α Persei	339 . 30	4 . 40,0	44,3	44,2	39,0	39,1	39,1			339 . 34 . 40,88	G.
Dec. 5	(*g*) ⊙ N.L. M.	50 . 55	2 . 23,4	32,1	28,0	25,9	27,9	26,9	17,450	– 2 . 33,05	50 . 54 . 54,28	G.
	⊙ S.L.	51 . 25	2 . 15,0	22,7	18,7	17,0	17,6	17,8			51 . 27 . 18,10	G.
Dec. 6	(*h*) ⊙ S.L. M.	51 . 35	2 . 12,9	20,3	18,5	15,0	16,3	16,8	17,773	– 2 . 39,60	51 . 34 . 37,12	G.
	⊙ N.L.	51 . 0	2 . 11,0	18,5	15,3	13,8	13,4	13,8			51 . 2 . 14,38	G.
	α Ursæ Maj. SP. R. M.	221 . 45	2 . 34,0	43,8	39,0	40,0	37,8	39,5	11,741	– 33,81	221 . 47 . 5,31	G.
	α Ursæ Major. SP.	271 . 30	0 . 53,2	60,5	59,5	55,9	52,3	56,0			271 . 30 . 56,27	G.
Dec. 7	Uranus	37 . 50	1 . 47,7	57,2	52,4	50,2	50,3	50,0			37 . 51 . 51,37	G.
	β Tauri R. M.	132 . 50	3 . 20,3	29,8	25,9	23,8	22,5	24,3	6,680	+ 1 . 11,74	132 . 54 . 36,29	G.
	(*i*) β Tauri	0 . 20	3 . 19,4	27,6	27,0	20,8	23,4	20,8		+ 0,32	0 . 23 . 23,60	G.
	δ Orionis R. M.	104 . 0	1 . 16,9	20,2	21,0	20,8	16,4	19,8	7,658	+ 51,34	104 . 2 . 10,57	G.
	δ Orionis	29 . 15	0 . 46,0	51,3	52,0	48,0	47,8	50,0			29 . 15 . 49,22	G.
	α Orionis R. M.	111 . 45	3 . 23,8	29,9	29,0	26,0	25,8	25,3	6,882	+ 1 . 7,54	111 . 49 . 34,29	G.
	α Orionis	21 . 25	3 . 23,8	29,9	30,1	26,8	26,8	26,0			21 . 28 . 27,35	G.
	Mars, center	21 . 20	3 . 14,6	19,0	20,5	16,8	16,2	17,0			21 . 23 . 17,47	G.
	Jupiter N.L.	33 . 15	2 . 16,2	22,8	22,8	17,9	20,4	21,0			33 . 17 . 20,33	G.

Coincidence at middle wire and Runs taken Dec. 11, 1^{h}. (Therm. 40°.)

(*a*) At the five wires. Very good. All the observations on the micrometer wire, on account of the slow change of N.P.D.

(*b*) Very faint and cloudy. The field of view much illumined by the Sun's light.

(*c*) Rugged edge.

(*d*) Very faint. (*e*) Disturbed mercury.

(*f*) At the 4th wire. (*g*) Cloudy.

(*h*) Without dark glass. N.L. not satisfactory.

(*i*) At 5th wire.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N.P.D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	23 . 50 . 6,10	29,346	48,0	46,0					61 . 30 . 11,83	☽.
	23 . 50 . 6,28								61 . 30 . 12,01	☽.
	23 . 50 . 6,71				25,48	23 . 22,85		15 . 54,82	61 . 30 . 12,44	☽.
	23 . 50 . 6,35								61 . 30 . 12,08	☽.
	23 . 50 . 6,53								61 . 30 . 12,26	☽.
	43 . 58 . 17,46	29,334	46,5	45,2	55,67	4,28			81 . 46 . 17,13	Mars.
	73 . 59 . 47,03	29,348	49,4	49,8	3 . 16,80	8,35		16 . 15,30	112 . 6 . 19,06	☉.
	74 . 32 . 9,33				3 . 23,82	8,37			112 . 6 . 17,76	☉.
59,82	− 9 . 41 . 26,47	29,336	48,7	48,0	9,81				28 . 5 . 32,00	α Cephei R.
	− 9 . 41 . 26,61								28 . 5 . 31,86	α Cephei.
	61 . 14 . 25,16		47,6	46,4	1 . 44,59	0,37			99 . 3 . 17,66	Uranus.
60,17	− 24 . 31 . 2,25		46,8	46,0	26,30				13 . 15 . 39,73	γ Cephei R.
	− 24 . 31 . 1,69								13 . 15 . 40,29	γ Cephei.
	56 . 24 . 50,68	29,422	45,0	42,5	1 . 27,51	1,21	8,574	16,05	94 . 13 . 41,31	Jupiter.
60,76	− 39 . 19 . 0,50				47,68				− 1 . 32 . 39,90	Polaris SP. R.
	− 39 . 18 . 58,77								− 1 . 32 . 38,17	Polaris SP.
	73 . 37 . 46,78	29,500	47,4	47,9	3 . 14,04	4,81	10,697	6,10	111 . 27 . 58,19	Venus.
	74 . 40 . 24,49	29,504	47,6	47,8	3 . 27,63	8,38		16 . 15,40	112 . 14 . 36,62	☉.
	74 . 8 . 4,11				3 . 20,43	8,35			112 . 14 . 39,87	☉.
	61 . 14 . 2,69	29,550	45,0	44,2	1 . 45,80	0,37			99 . 2 . 56,40	Uranus.
	− 4 . 9 . 3,07	29,568	41,8	41,0	4,26				33 . 38 . 0,95	∗ Æ. $1^{h}.21^{m}.46^{s}$.
	− 0 . 53 . 26,27				0,92				36 . 53 . 41,09	∗ Æ. $1^{h}.42^{m}.1^{s}$.
58,94	29 . 30 . 15,89	29,572	41,3	39,0	33,37				67 . 17 . 57,54	α Arietis R.
	29 . 30 . 13,99								67 . 17 . 55,64	α Arietis.
60,54	− 52 . 57 . 16,34	29,580	40,5	39,3	1 . 17,96				− 15 . 11 . 26,02	β Ur. Min. SP. R.
	− 52 . 57 . 15,04								− 15 . 11 . 24,72	β Ursæ Min. SP.
61,27	2 . 55 . 38,24				3,02				40 . 42 . 49,54	α Persei R.
	2 . 55 . 40,99								40 . 42 . 52,29	α Persei.
	74 . 15 . 54,39	29,778	45,0	45,2	3 . 25,13	8,36		16 . 15,50	112 . 22 . 34,94	☉.
	74 . 48 . 18,21				3 . 32,58	8,38			112 . 22 . 35,19	☉.
	74 . 55 . 37,23	30,180	41,0	40,3	3 . 39,46	8,39		16 . 15,60	112 . 30 . 0,98	☉.
	74 . 23 . 14,49				3 . 31,72	8,37			112 . 30 . 1,72	☉.
60,79	− 65 . 8 . 5,42	30,178	38,4	36,4	2 . 9,90				− 27 . 23 . 7,04	α Ur. Maj. SP. R.
	− 65 . 8 . 3,62								− 27 . 23 . 5,24	α Ursæ Maj. SP.
	61 . 12 . 51,48	30,228	43,5	42,1	1 . 48,61	0,37			99 . 1 . 48,00	Uranus.
59,95	23 . 44 . 23,60	30,242	38,5	37,5	27,22				61 . 31 . 59,10	β Tauri R.
	23 . 44 . 23,71								61 . 31 . 59,21	β Tauri.
59,90	52 . 36 . 49,32				1 . 19,03				90 . 25 . 16,63	δ Orionis R.
	52 . 36 . 49,33								90 . 25 . 16,64	δ Orionis.
60,82	44 . 49 . 25,60				1 . 0,07				82 . 37 . 33,95	α Orionis R.
	44 . 49 . 27,46								82 . 37 . 35,81	α Orionis.
	44 . 44 . 17,58	30,250	39,0	36,4	1 . 0,04	4,49			82 . 32 . 21,41	Mars.
	56 . 38 . 20,44	30,254	37,3	36,0	1 . 31,99	1,22	8,506	16,83	94 . 27 . 16,32	Jupiter.

Coincidence of Micrometer Wire with fixed Wire = $10^{r},108$, $10^{r},110$, $10^{r},112$, $10^{r},119$, $10^{r},122$ at the five wires. From Dec. 6 = $10^{r},120$ at middle wire.

One Micrometer Revolution = 20″,855.

Correction for Runs = − 0″,4. From Dec. 6 = + 1″,1.

Adopted Zenith Point = 336° . 38′ . 59″,89.

Assumed Co-latitude = 37° . 47′ . 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Dec. 7	Polaris SP. R. M..	195 . 55	4 . 20,1	27,4	26,4	23,3	24,3	22,8	14,280	-1 . 23,76	195 . 58 . 0,12	G.
	Polaris SP........	297 . 15	5 . 3,0	6,5	8,8	2,8	3,2	3,0			297 . 20 . 4,73	G.
Dec. 8	Uranus...........	37 . 50	1 . 21,9	28,1	26,8	23,9	25,3	25,6			37 . 51 . 25,32	G.
	α Pegasi R. M.....	118 . 45	2 . 20,0	29,1	24,1	21,5	22,3	21,5	10,060	+ 1,25	118 . 47 . 24,42	G.
	α Pegasi..........	14 . 30	0 . 32,6	38,9	38,9	35,8	36,8	36,1			14 . 30 . 36,53	G.
	⁎ Æ. $23^{h}.53^{m}.38^{s}$..	324 . 15	3 . 23,5	24,3	26,5	21,6	24,5	24,0			324 . 18 . 24,18	G.
	⁎ Æ. $23^{h}.56^{m}.54^{s}$..	324 . 55	3 . 40,8	43,5	47,4	40,3	40,9	42,3			324 . 58 . 42,67	G.
	⁎ Æ. $23^{h}.58^{m}.7^{s}$..	325 . 30	3 . 46,5	49,8	53,3	46,7	47,2	47,7			325 . 33 . 48,67	G.
	η Tauri R. M.....	128 . 0	2 . 23,3	31,8	29,8	26,0	26,3	26,0	8,574	+ 32,25	128 . 2 . 59,53	G.
	(*a*) η Tauri..........	5 . 10	4 . 57,2	61,8	65,8	58,9	60,0	59,5			5 . 15 . 0,53	G.
	Aldebaran R. M...	120 . 35	2 . 20,8	29,8	27,5	24,5	27,0	25,7	8,980	+ 23,78	120 . 37 . 49,75	G.
	Aldebaran........	12 . 40	0 . 7,0	11,0	15,0	7,8	11,8	8,8			12 . 40 . 10,23	G.
Dec. 9	Jupiter N.L......	33 . 20	3 . 45,8	53,2	53,8	47,0	52,2	50,6			33 . 23 . 50,57	G.
	Polaris SP. R. M..	195 . 55	4 . 23,0	32,5	29,5	27,2	28,8	25,3	14,473	-1 . 30,78	195 . 57 . 57,10	G.
	Polaris SP........	297 . 15	5 . 1,0	6,8	6,8	1,5	3,0	2,0			297 . 20 . 3,70	G.
	Spica R. M.......	94 . 5	4 . 38,8	46,5	46,5	42,3	41,9	42,0	12,200	- 43,38	94 . 8 . 59,79	G.
	Spica............	39 . 5	3 . 54,3	63,2	62,0	56,0	60,3	57,4			39 . 8 . 59,02	G.
	Arcturus R. M....	124 . 25	4 . 18,5	28,0	23,0	20,9	20,8	20,2	13,825	-1 . 17,27	124 . 28 . 4,80	G.
	Arcturus.........	8 . 45	4 . 51,2	55,8	60,6	50,5	53,9	51,2			8 . 49 . 54,05	G.
Dec. 10	(*b*) ⊙ S.L. M.........	52 . 0	1 . 32,0	39,6	38,0	35,5	35,8	35,1	14,881	-1 . 39,29	51 . 59 . 56,78	G.
	⊙ N.L...........	51 . 25	2 . 31,0	41,0	35,9	32,0	35,1	34,1			51 . 27 . 34,95	G.
	α Aquarii R. M...	103 . 15	4 . 10,2	18,0	15,8	12,4	12,8	11,1	3,655	+2 . 14,82	103 . 21 . 28,35	G.
	α Aquarii.........	29 . 55	1 . 28,5	33,2	33,9	28,8	30,0	31,0			29 . 56 . 30,95	G.
Dec. 11	α Pegasi R. M. ...	118 . 45	2 . 8,1	15,5	11,8	9,8	9,3	8,9	9,513	+ 12,66	118 . 47 . 23,31	G.
	α Pegasi	14 . 30	0 . 33,4	36,8	38,0	33,0	34,5	32,4			14 . 30 . 34,70	G.
	⁎ Æ. $23^{h}.53^{m}.38^{s}$..	324 . 15	3 . 23,1	23,8	25,4	21,3	23,2	23,0			324 . 18 . 23,42	G.
	⁎ Æ. $23^{h}.56^{m}.54^{s}$..	324 . 55	3 . 39,8	41,7	45,3	39,2	40,5	39,9			324 . 58 . 41,20	G.
	⁎ Æ. $23^{h}.58^{m}.7^{s}$..	325 . 30	3 . 44,9	46,2	50,8	43,8	45,5	44,2			325 . 33 . 46,03	G.
	Polaris R. M......	192 . 50	1 . 15,8	21,8	20,3	19,0	17,8	18,3	5,938	-1 . 27,22	192 . 52 . 46,10	G.
	Polaris...........	300 . 25	0 . 13,2	14,0	15,5	11,5	10,2	13,3			300 . 25 . 12,95	G.
Dec. 13	Jupiter N.L.......	33 . 35	1 . 10,0	17,0	15,0	11,1	12,9	13,2			33 . 36 . 13,20	C.
Dec. 14	Jupiter S.L.......	33 . 35	4 . 40,3	45,8	45,8	40,1	43,9	43,2			33 . 39 . 43,18	C.
Dec. 15	(*c*) ⊙ N.L. M.........	51 . 50	1 . 23,0	29,7	28,8	25,8	28,7	27,8	17,032	-2 . 24,15	51 . 49 . 3,15	C.
	⊙ S.L...........	52 . 20	1 . 27,8	34,2	33,7	29,5	32,4	31,5			52 . 21 . 31,52	C.
	Uranus...........	37 . 45	2 . 57,8	62,9	62,8	58,7	61,4	60,4			37 . 48 . 0,67	C.
	β Tauri R. M.....	132 . 50	3 . 24,3	31,1	28,8	25,8	29,0	27,0	6,843	+1 . 8,35	132 . 54 . 36,02	C.
	β Tauri..........	0 . 20	3 . 20,4	22,0	26,2	18,7	23,8	20,0			0 . 23 . 21,85	C.
	α Orionis R. M...	111 . 45	2 . 25,0	30,6	29,3	25,9	28,8	26,3	4,068	+2 . 6,21	111 . 49 . 33,86	C.
	α Orionis.........	21 . 25	3 . 22,8	28,2	27,8	24,5	28,2	26,2			21 . 28 . 26,28	C.
Dec. 18	(*d*) ⊙ S.L. M.........	52 . 25	5 . 1,8	8,8	9,2	3,6	6,5	5,4	13,808	-1 . 16,90 - 0,09	52 . 28 . 48,89	C.
	⊙ N.L.	51 . 55	1 . 21,7	26,6	26,7	23,6	25,3	26,4		- 0,31	51 . 56 . 24,74	C.
	(*e*) α Lyræ R. M......	143 . 5	0 . 12,4	18,2	18,6	15,0	17,3	17,7	12,213	- 43,81 - 0,12	143 . 4 . 32,60	C.
	α Lyræ...........	350 . 10	3 . 23,6	26,7	31,0	22,3	28,3	23,8		+ 0,12	350 . 13 . 26,07	C.
	Uranus...........	37 . 45	1 . 10,6	16,6	15,8	12,6	16,7	14,5			37 . 46 . 14,47	C.

Runs taken Dec. 18, 4^{h}. (Therm. 36°.)
Coincidences at the five wires taken Dec. 19, 3^{h}.

(*a*) No correction for runs.
(*b*) Very badly defined.
(*c*) Misty.

(*d*) At 4th and 5th wires. Corrections for change of N.P.D. – 0″,02 and – 0″,05.
(*e*) At 2nd and 4th wires. Good.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
62,43	- 39 . 19 . 0,23	30,254	37,3	36,0	49,69				- 1 . 32 . 41,64	Polaris SP. R.
	- 39 . 18 . 55,16								- 1 . 32 . 36,57	Polaris SP.
	61 . 12 . 25,43	30,310	39,4	37,5	1 . 49,92	0,37			99 . 1 . 23,26	Uranus.
60,48	37 . 51 . 35,47				47,11				75 . 39 . 30,86	*α* Pegasi R.
	37 . 51 . 36,64								75 . 39 . 32,03	*α* Pegasi.
	- 12 . 20 . 35,71	30,320	38,8	37,1	13,29				25 . 26 . 19,28	∗Æ.$23^h.53^m.38^s$.
	- 11 . 40 . 17,22				12,54				26 . 6 . 38,52	∗Æ.$23^h.56^m.54^s$.
	- 11 . 5 . 11,22				11,90				26 . 41 . 45,16	∗Æ.$23^h.58^m.7^s$.
60,03	28 . 36 . 0,36	30,346	37,0	35,5	33,23				66 . 23 . 41,87	*η* Tauri R.
	28 . 36 . 0,64								66 . 23 . 42,15	*η* Tauri.
59,99	36 . 1 . 10,14		36,8	35,0	44,35				73 . 49 . 2,77	Aldebaran R.
	36 . 1 . 10,34								73 . 49 . 2,97	Aldebaran.
	56 . 44 . 50,68	30,174	36,0	34,4	1 . 32,43	1,23	8,619	15,66	94 . 33 . 45,82	Jupiter.
60,40	- 39 . 18 . 57,21				49,73				- 1 . 32 . 38,66	Polaris SP. R.
	- 39 . 18 . 56,19								- 1 . 32 . 37,64	Polaris SP.
59,41	62 . 30 . 0,10				1 . 56,24				100 . 19 . 4,62	Spica R.
	62 . 29 . 59,13								100 . 19 . 3,65	Spica.
59,42	32 . 10 . 55,09	30,168	35,6	34,0	38,25				69 . 58 . 41,62	Arcturus R.
	32 . 10 . 54,16								69 . 58 . 40,69	Arcturus.
	75 . 20 . 56,89	30,148	38,4	38,7	3 . 46,39	8,41		16 . 16,10	112 . 55 . 27,05	⊙.
	74 . 48 . 35,06				3 . 38,23	8,39			112 . 55 . 29,28	⊙.
59,65	53 . 17 . 31,54	30,086	38,7	37,4	1 . 20,59				91 . 6 . 0,41	*α* Aquarii R.
	53 . 17 . 31,06								91 . 5 . 59,93	*α* Aquarii.
59,01	37 . 51 . 36,58	30,258	40,0	39,2	46,86				75 . 39 . 31,72	*α* Pegasi R.
	37 . 51 . 34,81								75 . 39 . 29,95	*α* Pegasi.
	- 12 . 20 . 36,47		39,3	38,3	13,23				25 . 26 . 18,58	∗Æ.$23^h.53^m.38^s$.
	- 11 . 40 . 18,69				12,48				26 . 6 . 37,11	∗Æ.$23^h.56^m.54^s$.
	- 11 . 5 . 13,86				11,84				26 . 41 . 42,58	∗Æ.$23^h.58^m.7^s$.
59,53	- 36 . 13 . 46,21		39,0	37,8	44,30				1 . 32 . 37,77	Polaris R.
	- 36 . 13 . 46,94								1 . 32 . 37,04	Polaris.
	56 . 57 . 13,31	30,304	41,3	40,4	1 . 32,39	1,24	8,529	16,60	94 . 46 . 9,34	Jupiter.
	57 . 0 . 43,29	30,300	39,0	36,1	1 . 33,42	1,25	11,788	17,40	94 . 49 . 6,34	Jupiter.
	75 . 10 . 3,26	30,278	39,6	40,3	3 . 43,78	8,41		16 . 16,60	113 . 17 . 3,51	⊙.
	75 . 42 . 31,63				3 . 52,36	8,43			113 . 17 . 7,24	⊙.
	61 . 9 . 0,78	30,260	40,3	39,0	1 . 49,14	0,37			98 . 57 . 57,83	Uranus.
58,94	23 . 44 . 23,87	30,268	37,8	34,6	26,79				61 . 31 . 58,94	*β* Tauri R.
	23 . 44 . 21,96								61 . 31 . 57,03	*β* Tauri.
60,07	44 . 49 . 26,03			33,0	1 . 0,69				82 . 37 . 35,00	*α* Orionis R.
	44 . 49 . 26,39								82 . 37 . 35,36	*α* Orionis.
	75 . 49 . 49,00	30,226	38,2	39,2	3 . 54,53	8,43		16 . 16,80	113 . 24 . 26,58	⊙.
	75 . 17 . 24,85				3 . 45,82	8,41			113 . 24 . 27,34	⊙.
59,34	13 . 34 . 27,29	30,222	38,4	38,7	14,56				51 . 21 . 50,13	*α* Lyræ R.
	13 . 34 . 26,18								51 . 21 . 49,02	*α* Lyræ.
	61 . 7 . 14,58	30,196	36,9	35,3	1 . 49,63	0,37			98 . 56 . 12,12	Uranus.

Coincidence of Micrometer Wire with fixed Wire = 10ʳ,120 at middle Wire. From Dec. 18 = 10ʳ,115, 10ʳ,112, 10ʳ,116, 10ʳ,121, 10ʳ,126 at the five wires.

One Micrometer Revolution = 20″,855.

Correction for Runs = + 1″,1. From Dec. 13 = 0″,0.

Adopted Zenith Point = 336°. 38′. 59″,89.

Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Dec. 18	*α* Androm. R. M..	132 . 35	4 . 48,6	55,5	53,9	50,3	54,3	50,2	13,003	-1. 0,21	132 . 38 . 51,92	C.
	(*a*) *α* Andromedæ.....	0 . 35	4 . 5,5	9,9	12,7	4,1	10,6	4,5		+0,32	0 . 39 . 8,20	C.
	(*b*) *κ* Dracon. SP. R. M.	213 . 45	1 . 12,4	17,4	16,5	14,0	15,6	15,9	15,821	-1 . 59,07 + 0,43	213 . 44 . 16,66	C.
	κ Draconis SP.....	279 . 30	3 . 41,0	45,0	45,3	41,0	42,7	42,9		- 0,43	279 . 33 . 42,55	C.
	(*c*) Polaris R. M.....	192 . 50	1 . 36,1	41,5	41,2	38,7	39,4	38,9	6,942	+1. 6,20	192 . 52 . 45,50	C.
	Polaris...........	300 . 25	0 . 11,6	12,5	15,3	10,4	10,4	12,2			300 . 25 . 12,07	C.
Dec. 20	(*b*) *μ* Geminorum R.M.	127 . 0	4 . 23,9	29,9	29,6	24,6	27,3	25,7	16,589	-2 . 15,08 - 0,06	127 . 2 . 11,69	C.
	μ Geminorum.....	6 . 15	0 . 44,4	46,6	50,8	43,1	48,4	45,3		+ 0,06	6 . 15 . 46,49	C.
	(*d*) Vesta	7 . 15	4 . 37,4	39,8	43,9	35,4	42,9	37,4		+ 0,39	7 . 19 . 39,86	C.
	(*b*) *δ* Dracon. SP. R. M.	217 . 5	0 . 22,7	26,8	25,8	24,0	26,8	25,8	20,847	-3 . 43,89 + 0,36	217 . 1 . 41,79	C.
	δ Draconis SP.....	276 . 15	1 . 17,7	19.6	19,7	16,6	18,0	20,4		- 0,36	276 . 16 . 18,31	C.
Dec. 25	(*e*) ☽ S.L. M	17 . 50	0 . 23,4	26,3	29,2	22,9	27,9	26,6	17,414	-2 . 32,21	17 . 47 . 53,82	C.
	☽ S.L. M..........	17 . 50	0 . 23,4	26,3	29,2	22,9	27,9	26,6	17,710	-2 . 38,28 + 4,51	17 . 47 . 52,26	C.
Dec. 27	(*f*) ⊙ N.L. M........	51 . 50	4 . 30,3	36,6	38,1	31,9	37,3	34,4	13,967	-1 . 20,27	51 . 53 . 14,35	C.
	⊙ S.L............	52 . 25	0 . 35,4	39,0	42,2	37,3	40,5	39,3		-0,21	52 . 25 . 38,72	C.
	α Lyræ M.	350 . 15	0 . 53,5	55,6	60,5	54,3	58,4	54,7	17,113	-2 . 25,88	350 . 13 . 30,25	C.
	(*g*) ☽ S.L...............	6 . 30	2 . 61,3	63,5	68,7	58,8	66,2	61,4		- 6,42	6 , 32 . 56,80	C.
	☽ S.L. M.........	6 . 30	2 . 61,3	63,5	68,7	58,8	66,2	61,4	10,341	- 4,74 - 3,21	6 . 32 . 55,27	C.
	☽ S.L. M.........	6 . 30	2 . 61,3	63,5	68,7	58,8	66,2	61,4	10,814	- 14,35 + 6,42	6 . 32 . 55,29	C.
	(*h*) Aldebaran R. M...	120 . 35	2 . 48,7	56,0	54,6	51,6	54,4	52,0	10,373	- 5,31	120 . 37 . 47.47	C.
	(*i*) Aldebaran.........	12 . 40	0 . 8,5	12,3	15,7	8,3	14,5	10,5		+ 0,39	12 . 40 . 12,02	C.
	(*b*) Capella R. M.....	150 . 15	1 , 37,3	44,2	44,0	40,0	45,4	40,7	12,044	- 40,26 - 0,16	150 . 16 . 1,46	C.
	Capella...........	343 . 0	1 . 56,3	59,4	63,0	56,4	62,0	57,4		+ 0,16	343 . 1 . 59,18	C,
	Vesta...........	6 . 50	3 . 40,8	46,5	48,8	39,7	47,6	42,3			6 . 53 . 44,15	C.
	(*b*) *ι* Ursæ Maj. R. M.	153 . 5	2 . 6,0	14,2	13,9	9,5	14,1	10,8	12,719	- 54,32 - 0,17	153 . 6 . 16,86	C.
	ι Ursæ Majoris....	340 . 10	1 . 42,8	44,9	48,2	41,3	44,8	43,8		+ 0,17	340 . 11 . 44,42	C.
	(*k*) Regulus R. M.....	117 . 10	2 . 41,2	48,6	46,1	42,6	45,7	42,8	12,113	- 41,61	117 . 12 . 2,81	C.
	(*i*) Regulus..........	16 . 5	0 . 53,4	56,2	60,7	53,0	57,5	54,6		+ 0,31	16 . 5 . 56,18	C.
Dec. 28	(*l*) ⊙ S.L. M.........	52 . 20	4 . 28,5	33,9	34,4	30,6	33,0	33,7	14,877	-1 . 39,25	52 . 22 . 53,12	C.
	⊙ N.L............	51 . 50	0 . 23,0	29,5	29,3	25,8	29,2	28,7			51 . 50 . 27,57	C.
	(*m*) *α* Lyræ...........	350 . 10	3 . 24,8	30,7	32,0	25,7	30,6	26,0		+ 2,17	350 . 13 . 30,35	C.
	Uranus	37 . 35	4 . 15,8	24,1	21,9	18,5	21,7	20,6			37 . 39 . 20,28	C.
	(*n*) ☽ N.L. M........	2 . 25	2 . 58,9	62,5	68,1	59,4	62,7	61,1	20,226	-3 . 30,88 - 4,04	2 . 24 . 27,10	C.
	☽ N.L. M........	2 . 25	2 . 58,9	62,5	68,1	59,4	62,7	61,1	20,368	-3 . 33,90 - 2,02	2 . 24 . 26,10	C.
	☽ S.L............	2 . 55	1 . 51,3	54,3	60,4	52,3	55,3	52,8		+ 5,55	2 . 56 . 59,88	C.
	δ Ursæ Min. SP. R. M..........	197 . 50	1 . 17,8	23,5	22,9	21,5	22,2	22,9	14,267 6 . 22 . 0	-1 . 26,53 + 0,42	197 . 49 . 55,64	C.
	δ Ursæ Min. SP...	295 . 25	3 . 3,3	6,2	9,5	2,3	3,5	3,8	6 . 28 . 40	- 2,68	295 . 28 . 1,99	C.

Coincidence at the middle wire and Runs taken Dec. 29, 3½h. (Therm. 39°.)
Dec. 28, 12h. Molyneux fast on Hardy, 0m.44s,0.

(*a*) At 5th wire. (*b*) At 2nd and 4th wires. (*c*) Not altogether satisfactory. (*d*) Three intervals before the middle wire. Correction for change of N.P.D. = −0″,15. (*e*) At 3rd and 4th wires. Hurried and unsatisfactory. (*f*) Hurried. S.L. at 5th wire. Correction for change of N.P.D. = +0″,05. (*g*) At 1st, 2nd, and 5th wires. None of the observations good: the eye-glass was misty. (*h*) Too near the fixed wire for a satisfactory bisection. (*i*) At the comb. (*k*) Blur, not admitting of a good bisection. (*l*) Negative division bisected. (*m*) Hurried: 4¼ intervals past middle wire. (*n*) N.L. at 1st and 2nd wires; S.L. at 2¾ intervals past middle wire. The eye-glass so misty, the limbs could not be clearly seen. Both were fully illumined.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
60,06	24. 0.· 7,97	30,194	35,6	34,2	27,08				61.47.43,33	α Androm. R.
	24. 0. 8,31								61.47.43,67	α Andromedæ.
59,61	-57. 5.16,77	30,196	35,3	33,6	1.33,86				-19.19.42,35	κ Dracon. SP. R.
	-57. 5.17,34								-19.19.42,92	κ Draconis SP.
58,79	-36.13.45,61		34,8	32,7	44,69				1.32.27,98	Polaris R.
	-36.13.47,82								1.32.35,77	Polaris.
59,09	29.36.48,20	30,256	37,4	36,2	34,49				67.24.30,97	μ Geminorum R.
	29.36.46,60								67.24.29,37	μ Geminorum.
	30.40.39,97	30,264	37,2	35,7	36,04	2,76			68.28.21,53	Vesta.
60,05	-60.22.41,90		36,7	35,0	1.46,68				-22.37.20,30	δ Dracon. SP. R.
	-60.22.41,58								-22.37.19,98	δ Draconis SP.
	41. 8.53,93	29,788	34,9	33,7	52,45	38.48,33		16. 9,57	78. 1.56,76	☽.
	41. 8.52,37								78. 1.55,20	☽.
	75.14.14,46	29,620	38,7	40,2	3.40,04	8,41		16.17,30	113.21.11,67	⊙.
	75.46.38,83				3.48,48	8,43			113.21. 9,86	⊙.
	13.34.30,36				14,23				51.21.52,87	α Lyræ.
	29.53.56,91	29,856	36,6	35,4					66.56.18,78	☽.
	29.53.55,38				34,49	29.14,54		16. 6,36	66.56.17,25	☽.
	29.53.55,40								66.56.17,27	☽.
59,75	36. 1.12,42	29,870	36,7	36,3	43,54				73.49. 4,24	Aldebaran R.
	36. 1.12,13								73.49. 3,95	Aldebaran.
60,32	6.22.58,43	29,888	36,6	35,7	6,72				44.10.13,43	Capella R.
	6.22.59,29								44.10.14,29	Capella.
	30.14.44,26	29,902	36,2	35,0	35,06	2,75			68. 2.24,85	Vesta.
60,64	3.32.43,03	29,968	35,5	34,3	3,74				41.19.55,05	ι Ursæ Maj. R.
	3.32.44,53								41.19.56,55	ι Ursæ Majoris.
59,50	39.26.57,08	29,986	35,3	34,4	49,65				77.14.55,01	Regulus R.
	39.26.56,29								77.14.54,22	Regulus.
	75.43.53,23	30,178	38,0	38,9	3.52,66	8,43		16.17,30	113.18.28,44	⊙.
	75.11.27,68				3.44,07	8,41			113.18.28,92	⊙.
	13.34.30,46				14,54				51.21.53,28	α Lyræ.
	61. 0.20,39	30,214	37,9	37,5	1.48,68	0,36			98.49.16,99	Uranus.
	25.45.27,21	30,224	34,8	32,6	29,48	25.19,87			63.23.46,40	☽.
	25.45.26,21							16. 1,30	63.23.45,40	☽.
	26.17.59,99				30,19	25.49,93			63.23.47,23	☽.
58,82	-41.10.55,75	30,208	34,0	32,3	53,41				-3.24.40,88	δ U. Min. SP. R.
	-41.10.57,90								-3.24.43,03	δ Urs. Min. SP.

Coincidence of Micrometer Wire with fixed Wire = 10r,115, 10r,112, 10r,116, 10r,121, 10r,126 at the five wires.
From Dec. 27 = 10r,115, 10r,114, 10r,118, 10r,123, 10r,126.
One Micrometer Revolution = 20″,855.
Correction for Runs = 0″,0. From Dec. 25 = − 1″,0.
Adopted Zenith Point = 336°. 38′. 59″,89.
Assumed Co-latitude = 37°. 47′. 8″,28.

Month and Day.	NAME OF STAR or PLANET.	Pointer.	Microscopes.						Micrometer, or Time by Molyneux.	Correction for Microm. or Time.	Concluded reading of Circle.	Observer.
			A	B	C	D	E	F				
		° ′	′ ″	″	″	″	″	″	r. h. m. s.	′ ″	° ′ ″	
Dec. 28	(*a*) Vesta............	6 . 45	4 . 56,4	60,9	66,3	54,8	60,9	57,7		+ 0,57	6 . 49 . 59,90	C.
Dec. 30	(*b*) α Lyræ R. M......	143 . 5	0 . 54,6	61,1	62,0	57,3	60,4	59,1	14,446	- 1 . 30,35 - 0,12	143 . 4 . 28,58	C.
	α Lyræ...........	350 . 10	3 . 26,8	29,4	33,0	25,7	30,9	26,8		+ 0,12	350 . 13 . 28,77	C.
Dec. 31	(*c*) ⊙ N.L. M........	51 . 40	2 . 27,9	33,9	32,8	28,9	33,0	31,8	18,874	- 3 . 2,61	51 . 39 . 28,69	C.
	⊙ S.L............	52 . 10	1 . 52,7	59,8	59,7	55,4	57,9	56,0			52 . 11 . 56,85	C.
	(*d*) η Draconis SP.R.M.	222 . 30	0 . 52,7	57,4	58,0	55,8	56,0	56,3	8,957	+ 24,14 + 0,87	222 . 31 . 21,01	C.
	η Draconis SP....	270 . 45	1 . 33,2	37,2	37,1	33,9	35,2	36,7		- 1,43	270 . 46 . 34,07	C.
	Capella R. M......	150 . 15	2 . 11,0	17,6	18,4	14,3	17,2	15,4	13,686	- 1 . 14,42	150 . 16 . 1,15	C.
	(*e*) Capella	343 . 0	1 . 54,5	57,6	62,6	55,4	60,9	56,3		+ 0,62	343 . 1 . 58,44	C.

(*a*) At $3\frac{1}{2}$ intervals before the middle wire. Hazy and doubtful. Correction for change of N.P.D. = - 0″,17.

(*b*) At the 2nd and 4th wires.

(*c*) Hazy and faint.

(*d*) The reflection observation a quarter of an interval before, the other, a quarter of an interval past the 5th wire.

(*e*) At the fifth wire.

Sec. of apparent Zenith Point.	Apparent Zenith Distance.	Barom.	Thermometer.		Refraction.	Parallax.	Micrometer for opposite Limb.	Semi-diameter.	Geoc. N. P. D. of Center.	NAME OF STAR or PLANET.
			Attach.	Free.						
″	° ′ ″	Inch.	°	°	′ ″	′ ″	r	′ ″	° ′ ″	
	30 . 11 . 0,01	30,208	34,0	32,3	35,53	2,75			67 . 58 . 41,07	Vesta.
58,68	13 . 34 . 31,31	30,398	39,6	40,3	14,60				51 . 21 . 54,19	α Lyræ R.
	13 . 34 . 28,88								51 . 21 . 51,76	α Lyræ.
	75 . 0 . 28,80	30,398	39,6	40,3	3 . 42,26	8,41		16 . 17,30	113 . 7 . 28,23	⊙.
	75 . 32 . 56,96				3 . 50,69	8,43			113 . 7 . 30,20	⊙.
57,54	− 65 . 52 . 21,12	30,460	38,1	37,2	2 . 15,38				− 28 . 7 . 28,22	η Dracon. SP. R.
	− 65 . 52 . 25,82								− 28 . 7 . 32,92	η Draconis SP.
59,80	6 . 22 . 58,74	30,456	37,7	35,9	6,84				44 . 10 . 13,86	Capella R.
	6 . 22 . 58,55								44 . 10 . 13,67	Capella.

Coincidence of Micrometer Wire with fixed Wire = 10r,118, at the middle Wire.
One Micrometer Revolution = 20″,855.
Correction for Runs = − 1″,0.
Adopted Zenith Point = 336°. 38′. 59″,89.
Assumed Co-latitude = 37°. 47′. 8″,28.

MEAN NORTH POLAR DISTANCES OF STARS

OBSERVED IN THE YEAR 1838,

AS DEDUCED FROM EACH DAY's OBSERVATION,

WITHOUT CORRECTION FOR THE DISCORDANCE OF ZENITH POINTS,
OR FOR THE ALTERATION OF CO-LATITUDE:

WITH

A CATALOGUE

OF THE

CONCLUDED MEAN NORTH POLAR DISTANCES,

January 1, 1838,

CORRECTED FOR THE DISCORDANCE OF ZENITH POINTS,
AND FOR THE ALTERATION OF CO-LATITUDE.

MEAN NORTH POLAR DISTANCES OF STARS OBSERVED IN THE YEAR 1838.

α Andromedæ.	
	° ′ ″
Dec. 18	61 . 48 . 12,97

α Andromedæ R.	
Dec. 18	61 . 48 . 12,63

t Piscium.	
Oct. 2	88 . 57 . 27,41
29	28,11

α Cassiopeiæ.	
Jan. 3	34 . 21 . 8,22
Oct. 2	7,89
4	8,07
12	9,03
29	8,74
Nov. 9	8,18

α Cassiopeiæ R.	
Jan. 3	34 . 21 . 7,61
Oct. 2	7,85
4	7,53
12	5,86
29	6,70
Nov. 9	7,60

α Cassiopeiæ SP.	
May 11	34 . 21 . 7,63

α Cassiopeiæ SP. R.	
May 11	34 . 21 . 6,00

A.S.C. 79.	
Oct. 2	85 . 33 . 12,56
3	11,71
31	13,68

γ Cassiopeiæ.	
Jan. 2	30 . 9 . 43,60
3	43,09
Oct. 12	45,58

γ Cassiopeiæ *continued.*	
	° ′ ″
Nov. 9	30 . 9 . 43,77

γ Cassiopeiæ R.	
Jan. 2	30 . 9 . 43,27
3	42,89
Oct. 12	42,99
Nov. 9	42,76

ε Piscium.	
Jan. 2	82 . 59 . 0,46
3	0,41
Oct. 31	0,89

Polaris.	
Jan. 2	1 . 33 . 15,57
3	16,11
5	16,83
March 27	16,26
28	16,18
30	15,20
April 2	16,42
3	17,21
10	14,13
May 1	16,44
1	15,60
3	16,06
4	15,49
6	16,69
7	16,71
8	17,22
10	16,96
14	17,94
16	16,44
Oct. 13	18,13
29	17,56
31	16,72
Nov. 9	15,59
Dec. 11	15,86
18	15,99

Polaris R.	
Jan. 2	1 . 33 . 17,11
3	17,01
5	16,74
March 27	17,06
28	16,99

Polaris R. *continued.*	
	° ′ ″
March 30	1 . 33 . 16,16
April 2	16,41
3	14,96
10	18,50
May 1	15,67
1	16,80
3	16,28
6	14,92
7	17,60
8	15,61
10	17,42
14	16,00
16	16,06
Oct. 13	16,15
29	15,81
31	16,81
Nov. 9	16,98
Dec. 11	16,59
18	18,20

Polaris SP.	
April 16	1 . 33 . 15,55
21	17,40
24	16,72
May 1	17,49
3	17,88
7	16,30
8	15,56
11	17,72
30	17,33
June 30	16,78
July 9	17,06
16	17,37
17	17,41
Sept. 11	15,81
28	17,04
Oct. 16	16,44
29	15,74
Nov. 5	15,96
7	16,92
9	15,43
Dec. 3	15,19
7	14,54
9	16,06

Polaris SP. R.	
April 16	1 . 33 . 17,20
21	17,26
24	15,40

Polaris SP. R. *continued.*	
	° ′ ″
May 1	1 . 33 . 16,51
3	15,57
7	17,33
8	16,19
11	16,53
30	15,22
June 30	17,53
July 9	17,48
16	19,22
17	17,61
Sept. 11	16,07
28	20,31
Oct. 16	16,64
29	16,98
Nov. 5	17,80
7	15,78
9	16,65
Dec. 3	16,92
7	19,61
9	17,08

* Æ. $1^{h}.21^{m}.42^{s}$.	
Nov. 1	33 . 38 . 31,34
Dec. 4	35,90

η Piscium.	
Jan. 3	75 . 29 . 28,13
Oct. 3	27,37

o Piscium.	
Jan. 3	81 . 39 . 36,31
Oct. 3	36,34

* Æ. $1^{h}.41^{m}.13^{s}$.	
Nov. 12	36 . 56 . 20,13

* Æ. $1^{h}.41^{m}.57^{s}$.	
Nov. 1	36 . 54 . 14,38
12	14,13
Dec. 4	14,81

ε Cassiopeiæ SP.	
	° ′ ″
April 21	27 . 7 . 53,36
May 11	53,44
16	52,38

ε Cassiopeiæ SP. R.	
April 21	27 . 7 . 55,89
May 11	52,48
16	54,46

α Arietis.	
Jan. 20	67 . 18 . 23,48
March 27	22,78
Oct. 17	24,49
Dec. 4	23,44

α Arietis R.	
Jan. 20	67 . 18 . 25,18
March 27	26,97
Oct. 17	25,52
Dec. 4	25,34

ψ Arietis.	
Jan. 5	73 . 0 . 58,90

A.S.C. 271.	
Feb. 6	66 . 3 . 41,94

θ Persei.	
Nov. 1	41 . 27 . 43,30

π Arietis.	
Jan. 5	73 . 12 . 48,27

ε Arietis.	
Nov. 2	69 . 18 . 42,57

α Ceti.	
	° ′ ″
Jan. 20	86 . 32 . 59,98
29	33 . 0,30

α Ceti R.	
Jan. 20	86 . 32 . 59,75
29	33 . 0,62

β Persei.	
Nov. 1	49 . 40 . 24,45
2	24,25
22	24,13

β Persei R.	
Nov. 1	49 . 40 . 26,02
2	25,07
22	26,80

δ Arietis.	
Nov. 1	70 . 53 . 26,78
2	27,23

α Persei.	
Jan. 29	40 . 43 . 17,84
Nov. 1	18,36
2	19,13
22	18,12
Dec. 4	19,12

α Persei R.	
Jan. 29	40 . 43 . 18,36
Nov. 1	18,07
2	17,96
22	18,48
Dec. 4	16,37

g Arietis.	
Jan. 5	65 . 51 . 17,16

F Eridani.	
Feb. 12	108 . 0 . 28,56
13	28,27

η Tauri.	
	° ′ ″
Jan. 5	66 . 24 . 3,78
29	2,85
Feb. 12	4,34
14	5,11
Nov. 2	4,11
22	3,58
29	4,28
30	4,62
Dec. 8	4,89

η Tauri R.	
Jan. 29	66 . 24 . 6,57
Feb. 12	4,63
14	5,35
Nov. 2	5,40
22	6,10
Dec. 8	4,61

υ^1 Tauri.	
Nov. 30	67 . 33 . 36,87

80 Tauri.	
Feb. 6	74 . 43 . 20,13
12	19,06
14	21,74

Aldebaran.	
Jan. 22	73 . 49 . 19,64
29	19,69
Feb. 12	21,02
14	21,44
March 27	19,49
Dec. 8	21,13
27	21,73

Aldebaran R.	
Jan. 22	73 . 49 . 23,03
29	22,39
Feb. 12	21,66
14	22,10
March 27	23,36
Dec. 8	20,93
27	22,02

τ Tauri.	
	° ′ ″
Nov. 30	67 . 21 . 37,33

ι Tauri.	
Feb. 3	68 . 38 . 52,57
4	53,43
March 3	52,15
8	52,31
9	52,73

Capella.	
Jan. 4	44 . 10 . 31,16
16	30,32
Feb. 3	29,95
4	31,33
March 3	30,97
6	30,03
8	30,80
9	31,16
27	29,58
May 7	31,17
12	31,41
June 22	31,45
Nov. 30	31,89
Dec. 27	31,67
31	31,61

Capella R.	
Jan. 4	44 . 10 . 29,59
16	28,94
Feb. 3	31,19
4	28,90
March 3	30,82
6	30,71
8	30,35
9	30,57
27	32,46
May 7	31,05
12	32,85
June 22	31,53
Nov. 30	31,16
Dec. 27	30,81
31	31,80

Rigel.	
March 12	98 . 23 . 39,52
30	38,17
Aug. 13	39,12

Rigel R.	
	° ′ ″
March 12	98 . 23 . 39,36
30	42,89
Aug. 13	39,55

β Tauri.	
Jan. 22	61 . 32 . 10,74
Feb. 3	10,75
4	11,42
March 3	10,59
6	10,06
8	10,50
12	10,88
27	9,22
30	10,43
Dec. 7	12,66
15	10,80

β Tauri R.	
Jan. 22	61 . 32 . 13,41
Feb. 3	12,42
4	10,95
March 3	12,95
6	12,93
8	12,35
12	12,77
27	14,27
30	13,36
Dec. 7	12,55
15	12,71

δ Orionis.	
Feb. 3	90 . 25 . 29,48
March 9	29,89
12	29,50
27	28,88
Dec. 7	30,12

δ Orionis R.	
Feb. 3	90 . 25 . 29,48
March 9	30,06
12	31,40
27	31,67
Dec. 7	30,11

120 Tauri.	
	° ′ ″
Feb. 6	71 . 34 . 54,98
12	56,04
14	55,66

ζ Tauri.	
March 30	68 . 57 . 45,85

ϕ^2 Orionis.	
Feb. 6	80 . 48 . 13,26
12	14,17
14	15,28

d Orionis.	
Feb. 12	97 . 18 . 32,15
14	32,31
March 6	31,12

31 Camelopardi SP.	
July 16	30 . 9 . 32,19

31 Camelopardi SP. R.	
July 16	30 . 9 . 31,04

A.S.C. 721.	
Feb. 12	76 . 0 . 21,87
14	23,48
March 6	22,64

C Tauri.	
Feb. 4	62 . 26 . 0,89

α Orionis.	
Dec. 7	82 . 37 . 47,14
15	45,89

α Orionis R.	
Dec. 7	82 . 37 . 45,28
15	45,53

a Lyncis SP.	
	° ′ ″
July 20	28 . 26 . 36,27

a Lyncis SP. R.	
July 20	28 . 26 . 36,42

κ Aurigæ.	
Feb. 4	60 . 26 . 59,52

μ Geminorum.	
Dec. 20	67 . 24 . 36,38

μ Geminorum R.	
Dec. 20	67 . 24 . 37,98

ε Geminorum.	
April 1	64 . 42 . 56,54

Castor.	
Feb. 28	57 . 45 . 48,51
March 10	47,54
April 12	48,80

Castor R.	
Feb. 28	57 . 45 . 49,41
March 10	47,46
April 12	47,36

Procyon.	
Feb. 28	84 . 21 . 53,98
April 12	55,16
May 8	55,20
9	55,36
10	55,07
12	52,51
Aug. 23	54,31
24	55,14

Procyon R.	
	° ′ ″
Feb. 28	84 . 21 . 55,85
April 12	52,19
May 8	55,43
9	55,11
10	54,51
12	56,66
Aug. 23	53,95
24	52,54

Pollux.	
Feb. 28	61 . 35 . 18,35
March 10	18,15
April 12	18,63
May 8	18,70
9	20,86
10	19,58
12	19,08
Aug. 23	19,78
29	18,93
Sept. 10	19,61

Pollux R.	
Feb. 28	61 . 35 . 19,54
March 10	19,69
April 12	19,33
May 8	20,13
9	20,75
10	20,14
12	21,13
Aug. 23	19,29
29	19,63
Sept. 10	19,79

ψ^3 Cancri.	
Feb. 28	59 . 51 . 49,26
March 9	50,06
30	48,56

ϕ^2 Cancri (preceding.)	
Feb. 13	62 . 32 . 31,40
28	30,17

ϕ^2 Cancri (preceding) *continued.*	
	° ′ ″
March 6	62 . 32 . 30,73
30	30,51

ϕ^2 Cancri (following).	
Feb. 13	62 . 32 . 27,13
28	26,19
March 6	26,39
30	26,47

γ Cancri.	
March 7	67 . 57 . 12,71
9	12,93

ι Ursæ Majoris.	
Feb. 28	41 . 19 . 38,81
March 9	39,51
Dec. 27	39,91

ι Ursæ Majoris R.	
Feb. 28	41 . 19 . 40,17
March 9	39,14
Dec. 27	38,41

q Cancri.	
March 7	71 . 36 . 43,12
8	42,35

α Hydræ.	
Feb. 24	97 . 57 . 36,11
May 7	36,07

α Hydræ R.	
Feb. 24	97 . 57 . 36,46
May 7	36,93

λ Leonis.	
Feb. 9	66 . 19 . 16,68
March 7	16,40
8	16,45

ψ Leonis.	
	° ′ ″
Feb. 9	75 . 14 . 26,10

υ Ursæ Majoris SP.	
Sept. 13	30 . 12 . 12,22
20	10,35
21	11,71

υ Ursæ Majoris SP. R.	
Sept. 13	30 . 12 . 12,61
20	13,02
21	14,44

A.S.C. 1195.	
March 7	85 . 50 . 38,52
8	39,06
16	37,93

Regulus.	
Feb. 19	77 . 14 . 37,84
March 3	37,19
8	37,60
28	36,76
April 16	39,09
24	37,37
May 7	38,42
July 2	37,55
Oct. 12	37,73
24	36,91
Dec. 27	36,71

Regulus R.	
Feb. 19	77 . 14 . 36,54
March 3	37,51
8	37,41
28	37,60
April 16	35,81
24	38,21
May 7	36,16
July 2	37,79
Oct. 12	37,97
24	37,06
Dec. 27	37,50

γ Leonis.	
	° ′ ″
Feb. 9	69 . 20 . 30,39
10	29,51
March 8	28,02
10	28,53
17	28,07
April 16	30,03
24	29,46
May 3	28,73
4	28,91

γ Leonis R.	
May 3	69 . 20 . 30,99
4	29,89

ρ Leonis.	
Feb. 9	79 . 51 . 43,72
10	43,59
May 3	41,93
4	42,77

m^2 Leonis.	
March 8	70 . 15 . 22,67
9	21,05
10	20,96

k Leonis.	
March 8	74 . 57 . 7,13
9	4,59
10	5,51

l Leonis.	
March 10	78 . 35 . 57,66

α Ursæ Majoris.	
Feb. 10	27 . 22 . 34,85
March 6	34,68
8	34,37
10	34,07
12	34,57
15	34,83
April 7	34,15
9	33,62
10	33,25
16	35,67

α Ursæ Majoris *continued.*	
	° ′ ″
April 19	27 . 22 . 34,13
24	33,63
May 3	33,37
5	33,85
7	33,53
10	34,26
11	33,15
15	35,02
16	34,56
17	34,41
22	33,61
30	32,96
June 5	34,11
6	33,36
8	33,97
Sept. 1	35,17
27	33,86
Oct. 2	33,22
11	34,31
24	34,56

α Ursæ Majoris R.	
Feb. 10	27 . 22 . 32,75
March 6	32,85
8	33,12
10	34,11
12	33,98
15	33,32
April 7	33,79
9	32,74
10	34,28
16	32,78
19	33,10
24	33,99
May 3	33,84
5	33,21
7	34,05
10	33,27
11	34,14
15	33,26
16	33,77
17	33,49
22	33,34
30	33,97
June 5	34,58
6	33,97
8	33,33
Sept. 1	33,92
27	33,94
Oct. 2	35,47
11	34,27
24	34,14

MEAN NORTH POLAR DISTANCES OF STARS OBSERVED IN THE YEAR 1838.

α Ursæ Majoris SP.	
	° ′ ″
Sept. 27	27 . 22 . 34,00
28	34,71
Dec. 6	33,21

α Ursæ Majoris SP. R.	
Sept. 27	27 . 22 . 34,40
28	33,54
Dec. 6	35,01

χ Leonis.	
Feb. 10	81 . 47 . 23,53
11	23,67
March 10	21,99
May 3	21,86
5	23,06
7	22,29

σ Leonis.	
May 3	83 . 5 . 0,64
4	0,92
5	1,33
7	1,40

ι Leonis.	
Feb. 10	78 . 34 . 45,30
11	45,84
April 7	45,13
9	44,79
10	44,36

υ Leonis.	
April 7	89 . 55 . 47,33
10	46,74

ν Virginis.	
March 10	82 . 33 . 47,37
11	46,95
May 4	46,94
5	47,70
10	47,50

β Leonis.	
	° ′ ″
May 3	74 . 31 . 20,16
11	21,25
15	20,34
16	20,32
17	20,34
22	20,66
June 8	21,44

β Leonis R.	
May 3	74 . 31 . 20,17
11	21,84
15	21,55
16	21,10
17	21,21
22	21,86
June 8	21,40

β Virginis.	
March 10	87 . 19 . 20,53
12	20,41
May 4	20,84
5	20,06
10	19,06

γ Ursæ Majoris.	
March 15	35 . 24 . 15,80
30	16,44
April 10	15,48
21	16,97
May 3	15,60
5	17,10
10	16,35
11	16,50
15	17,19
16	16,07
17	17,16
22	15,06
June 6	15,72
7	15,73
8	16,29

γ Ursæ Majoris R.	
March 15	35 . 24 . 15,14
30	15,03
April 10	15,19
21	14,69
May 3	15,16

γ Ursæ Majoris R. *continued.*	
	° ′ ″
May 5	35 . 24 . 12,01
10	15,57
11	15,31
15	15,30
16	14,61
17	15,52
22	16,35
June 6	14,78
7	14,47
8	16,95

γ Ursæ Majoris SP.	
Sept. 27	35 . 24 . 14,31

γ Ursæ Majoris SP. R.	
Sept. 27	35 . 24 . 15,26

b Virginis.	
April 7	85 . 26 . 32,76
10	32,58
21	32,64

n Virginis.	
April 7	89 . 53 . 10,79
8	9,79
10	10,41

η Virginis.	
March 12	89 . 45 . 57,18
30	56,87
April 8	57,14
10	56,51

18 Comæ Berenices.	
March 30	64 . 59 . 39,79
May 10	40,51
11	39,41

κ Draconis SP.	
Dec. 18	19 . 19 . 4,02

κ Draconis SP. R.	
Dec. 18	19 . 19 . 3,45

γ^1 Virginis.	
	° ′ ″
March 12	90 . 33 . 34,33
30	34,24
April 7	34,72
8	34,16
May 5	35,33
7	34,79
8	36,39
10	33,70

ψ Virginis.	
April 8	98 . 39 . 26,01
12	27,39
24	27,64

θ Virginis.	
March 12	94 . 40 . 18,81
30	18,78
April 7	20,13
27	19,87
May 7	19,80
8	19,25

Spica.	
April 9	100 . 18 . 47,94
24	48,21
27	48,98
May 7	46,54
8	48,26
June 7	47,81
Dec. 9	47,99

Spica R.	
April 9	100 . 18 . 46,85
24	48,37
27	47,87
May 7	48,38
8	48,30
June 7	47,33
Dec. 9	48,96

η Ursæ Majoris.	
April 27	39 . 52 . 32,76

η Ursæ Majoris *continued.*

	°	′	″
May 4	39	52	33,21
12			33,25
15			33,87
June 7			32,97
22			33,20

η Ursæ Majoris R.

	°	′	″
April 27	39	52	29,74
May 4			32,72
12			32,48
15			32,31
June 7			34,26
22			34,86

η Bootis.

	°	′	″
May 2	70	47	14,64
4			15,82
15			15,21
June 7			14,84

η Bootis R.

	°	′	″
May 2	70	47	14,15
4			12,95
15			13,39
June 7			14,43

Arcturus.

	°	′	″
April 11	69	58	14,18
24			15,73
27			15,75
May 1			14,67
2			14,51
22			14,50
July 4			13,71
5			15,22
9			14,38
16			15,14
Sept. 28			14,01
Nov. 13			15,44
Dec. 9			15,04

Arcturus R.

	°	′	″
April 11	69	58	15,49

Arcturus R. *continued.*

	°	′	″
April 24	69	58	15,62
27			15,47
May 1			16,40
2			15,15
22			15,54
July 4			15,65
5			16,66
9			16,82
16			15,78
Sept. 28			16,54
Nov. 13			15,40
Dec. 9			15,97

λ Virginis.

	°	′	″
April 11	102	37	17,32
24			18,34
27			18,25
May 7			17,78
8			17,88
10			16,33

2 Libræ.

	°	′	″
June 4	100	58	12,36

α^1 Libræ.

	°	′	″
May 4	105	19	7,78
10			6,62
17			6,92
June 5			7,14

α^1 Libræ R.

	°	′	″
May 4	105	19	8,34
10			6,14
17			6,43
June 5			7,66

α^2 Libræ.

	°	′	″
April 27	105	21	(52,82)
May 4			51,05
10			48,26
17			48,27
28			51,05
June 5			49,18

α^2 Libræ R.

	°	′	″
April 27	105	21	(47,88)
May 4			49,51
10			49,38
17			48,53
28			50,06
June 5			48,98

β Ursæ Minoris.

	°	′	″
April 11	15	10	56,82
21			56,47
23			57,26
27			55,79
May 4			57,43
8			58,20
10			58,28
14			58,89
17			58,43
28			56,50
29			56,56
June 12			56,06
19			57,04

β Ursæ Minoris R.

	°	′	″
April 11	15	10	57,02
21			56,23
23			55,09
27			55,87
May 4			57,60
8			57,03
10			57,36
14			56,56
17			58,23
28			56,72
29			57,09
June 12			58,13
19			56,36

β Ursæ Minoris SP.

	°	′	″
Dec. 4	15	10	56,11

β Ursæ Minoris SP. R.

	°	′	″
Dec. 4	15	10	57,41

20 Libræ.

	°	′	″
May 8	114	38	22,11
10			21,92
11			21,98

ι^1 Libræ.

	°	′	″
April 11	109	10	22,45
23			21,94
May 3			23,92

β Libræ.

	°	′	″
April 11	98	46	45,63
23			48,35
May 14			46,07
26			46,79
June 12			46,69

β Libræ R.

	°	′	″
April 11	98	46	47,91
23			46,91
May 14			47,31
26			48,45
June 12			50,62

α Coronæ Borealis.

	°	′	″
April 23	62	44	8,37
May 11			7,78
14			7,79
22			8,84
26			8,30
28			9,84
June 4			8,62

α Coronæ Borealis R.

	°	′	″
April 23	62	44	7,61
May 11			8,56
14			9,29
22			9,72
26			8,05
28			8,30
June 4			9,03

χ Libræ.

	°	′	″
May 10	113	17	5,30
11			6,48

α Serpentis.

	°	′	″
April 23	83	3	34,30

MEAN NORTH POLAR DISTANCES OF STARS OBSERVED IN THE YEAR 1838.

α Serpentis *continued.*	°	′	″
June 2	83	3	34,00
15			34,30
23			34,21

α Serpentis R.			
April 23	83	3	35,59
June 2			34,17
15			35,26
23			34,00

ζ Ursæ Minoris.			
April 23	11	42	39,01
May 1			38,78
26			39,26
28			38,71
June 4			37,83
12			39,24
15			38,95
19			38,96
22			39,24
23			39,32
July 18			38,76

ζ Ursæ Minoris R.			
April 23	11	42	38,82
May 1			38,70
26			39,72
28			38,32
June 4			38,09
12			39,54
15			37,87
19			39,50
22			36,74
23			37,20
July 18			40,42

ζ Ursæ Minoris SP.			
Jan. 4	11	42	37,55
Feb. 6			39,03
12			38,45
14			38,97

ζ Ursæ Minoris SP. R.			
Jan. 4	11	42	38,41

ζ Ursæ Min. SP. R. *continued.*	°	′	″
Feb. 6	11	42	37,80
12			37,74
14			39,05

δ Scorpii.			
May 10	112	9	12,29
11			12,70

δ Ophiuchi.			
June 12	93	16	16,90
23			16,65
July 18			16,38

δ Ophiuchi R.			
June 12	93	16	16,95
23			16,31
July 18			17,45

η Draconis.			
June 4	28	7	2,78
22			3,99
23			3,21

η Draconis R.			
June 4	28	7	2,74
22			1,29
23			2,40

η Draconis SP.			
Jan. 4	28	7	2,04
Dec. 31			6,12

η Draconis SP. R.			
Jan. 4	28	7	3,96
Dec. 31			1,42

τ Scorpii.			
May 10	117	52	17,96
11			19,39

25 Scorpii.	°	′	″
May 10	115	13	32,49
11			28,43
July 4			32,86

ε Ursæ Minoris.			
June 4	7	42	28,00

ε Ursæ Minoris R.			
June 4	7	42	28,19

A Ophiuchi (preceding.)			
July 16	116	21	28,02
20			24,75
24			25,07
31			26,45
Aug. 11			20,04

30 Scorpii.			
July 16	116	18	19,08
20			18,69
24			17,63
31			18,19
Aug. 11			16,14

ζ Draconis SP.			
Jan. 5	24	5	6,34
Feb. 12			7,50
14			7,02

ζ Draconis SP. R.			
Jan. 5	24	5	9,11
Feb. 12			7,11
14			10,21

θ Ophiuchi.			
June 7	114	49	48,96
8			47,33

α Ophiuchi.			
May 26	77	18	57,14
July 28			57,87

α Ophiuchi R.	°	′	″
May 26	77	18	57,74
July 28			59,67

79 Herculis.			
Aug. 11	65	35	17,14
13			19,43
15			17,84

3 Sagittarii.			
June 7	117	45	36,06
8			39,41

δ Sagittarii.			
June 8	119	53	17, 04
Aug. 2			18,73
11			17,41

δ Ursæ Minoris.			
Jan. 3	3	24	35,06
May 28			35,25
30			35,07
June 4			34,90
8			34,76
22			35,51
July 4			34,02
13			33,78
28			34,56
Aug. 11			32,79
15			36,90
27			34,68
30			34,89
Sept. 11			34,28
15			33,57

δ Ursæ Minoris R.			
Jan. 3	3	24	33,99
May 28			34,46
30			35,30
June 4			33,78
8			33,03
22			32,34
July 4			34,19

δ Ursæ Minoris R. *continued.*	° ′ ″
July 13……	3 . 24 . 33,25
28	33,37
Aug. 11	33,25
15	35,04
27	34,96
30	33,15
Sept. 11	34,44
15	34,17

δ Ursæ Minoris SP.	
Feb. 12……	3 . 24 . 34,04
14	34,42
20	35,73
28	35,42
March 6	36,40
8	33,63
Dec. 28	36,41

δ Ursæ Minoris SP. R.	
Feb. 12……	3 . 24 . 33,95
14	34,50
20	34,10
28	32,51
March 6	32,99
8	34,13
Dec. 28	34,26

α Lyræ.	
Jan. 3……	51 . 21 . 48,58
4	47,55
12	48,27
14	48,30
18	47,13
Feb. 4	47,42
5	46,91
15	47,99
May 28	47,61
30	45,96
June 4	46,60
8	46,18
9	46,94
22	47,06
July 4	45,20
7	45,99
9	44,24
11	45,72
12	45,11

α Lyræ *continued.*	° ′ ″
July 13……	51 . 21 . 46,57
16	45,78
18	46,34
20	46,28
24	45,95
28	45,06
31	46,05
Aug. 11	44,76
13	45,80
15	45,55
27	45,71
Sept. 11	45,16
15	45,39
20	45,57
21	46,52
Oct. 3	45,31
19	46,42
Dec. 18	46,05
27	47,11
28	47,18
30	44,98

α Lyræ R.	
Jan. 3……	51 . 21 . 46,71
4	46,79
12	45,96
14	45,12
18	46,62
Feb. 4	46,52
5	47,10
15	46,04
May 28	46,24
30	46,43
June 4	46,77
8	46,07
9	48,11
22	45,85
July 4	46,96
7	44,45
9	46,02
11	46,12
12	46,79
13	47,14
16	47,20
18	44,61
20	47,21
24	46,24
28	47,88
31	48,49
Aug. 11	48,53
13	46,00
15	45,66
27	46,62

α Lyræ R. *continued.*	° ′ ″
Sept. 11……	51 . 21 . 46,99
15	47,22
20	46,25
21	47,29
Oct. 3	48,52
19	47,41
Dec. 18	47,16
30	47,41

φ Sagittarii.	
June 8…	117 . 8 . 55,80
Aug. 2	56,97
11	53,96

β Lyræ.	
Aug. 13……	56 . 49 . 14,53
Sept. 15	14,16
21	14,39
Oct. 3	13,96

β Lyræ R.	
Aug. 13……	56 . 49 . 13,88
Sept. 15	15,91
21	16,32
Oct. 3	16,12

δ Draconis SP.	
Dec. 20……	22 . 37 . 24,10

δ Draconis SP. R.	
Dec. 20……	22 . 37 . 24,42

γ Aquilæ.	
Aug. 8……	79 . 46 . 35,03
13	35,14
Oct. 3	33,25

γ Aquilæ R.	
Aug. 8……	79 . 46 . 34,45
13	34,08

γ Aquilæ R. *continued.*	° ′ ″
Oct. 3……	79 . 46 . 36,36

α Aquilæ.	
Feb. 11……	81 . 33 . 16,84
12	16,86
13	17,57
19	15,02
July 13	15,46
Aug. 8	14,59
13	15,21
31	13,27
Oct. 19	15,21

α Aquilæ R.	
Feb. 11……	81 . 33 . 14,81
12	17,75
13	13,82
19	15,00
July 13	14,52
Aug. 8	17,52
13	13,90
31	15,75
Oct. 19	14,20

β Aquilæ.	
Aug. 8……	83 . 59 . 32,74
31	30,88
Oct. 19	32,76
26	32,22

β Aquilæ R.	
Aug. 8……	83 . 59 . 33,53
31	34,47
Oct. 19	35,39
26	33,22

c Sagittarii.	
Aug. 31…..	118 . 9 . 8,99

κ Cephei SP.	
Feb. 28……	12 . 46 . 48,89
March 9	47,82

κ Cephei SP. R.	
	° ′ ″
Feb. 28	12 . 46 . 44,89
March 9	45,72

λ Ursæ Minoris.	
Aug. 8	1 . 10 . 39,46
Oct. 26	38,56

λ Ursæ Minoris R.	
Aug. 8	1 . 10 . 35,72
Oct. 26	38,29

α Cygni.	
Jan. 3	45 . 17 . 43,56
Feb. 12	45,41
13	45,91
21	43,09
March 6	43,44
8	43,80
17	44,00
April 4	43,96
Aug. 8	43,06
Sept. 8	44,33
Oct. 17	43,54
26	42,23

α Cygni R.	
Jan. 3	45 . 17 . 42,57
Feb. 12	42,83
13	43,15
21	43,26
March 6	43,04
8	42,58
17	43,07
April 4	43,87
Aug. 8	43,05
Sept. 8	43,67
Oct. 17	42,96
26	43,35

η Cephei SP.	
	° ′ ″
Feb. 28	28 . 47 . 20,15
March 7	18,11
9	17,70

η Cephei SP. R.	
Feb. 28	28 . 47 . 18,95
March 7	18,33
9	18,83

* Æ. 21h. 2m. 38s.	
Nov. 9	25 . 2 . 14,28
12	15,93
14	15,60

α Cephei.	
Feb. 19	28 . 5 . 57,09
21	57,51
March 16	57,10
17	56,41
28	57,03
April 2	57,75
4	56,49
Aug. 29	57,05
30	56,80
Sept. 21	57,21
Oct. 31	56,53
Nov. 24	57,74
Dec. 3	57,11

α Cephei R.	
Feb. 19	28 . 5 . 55,79
21	56,04
March 16	55,64
17	57,09
28	56,79
April 2	55,76
4	58,00
Aug. 29	56,25
30	56,57
Sept. 21	56,22
Oct. 31	55,14

α Cephei R. *continued.*	
	° ′ ″
Nov. 24	28 . 5 . 56,87
Dec. 3	57,25

α Cephei SP.	
March 28	28 . 5 . 56,83

α Cephei SP. R.	
March 28	28 . 5 . 56,18

6 Cephei.	
Nov. 9	25 . 48 . 49,45
12	50,92
13	49,80

ζ Capricorni.	
Oct. 26	113 . 6 . 30,39

β Aquarii.	
Aug. 29	96 . 16 . 46,80
30	45,74
Sept. 15	46,61
20	46,20
21	47,92
Nov. 12	46,71
13	46,83
24	45,03

β Aquarii R.	
Aug. 29	96 . 16 . 46,39
30	46,60
Sept. 15	47,42
20	47,01
21	47,23
Nov. 12	47,26
13	46,89
24	45,86

β Cephei.	
March 26	20 . 8 . 56,76
April 2	58,19
4	57,41

β Cephei *continued.*	
	° ′ ″
Aug. 29	20 . 8 . 59,42
30	58,67
Sept. 13	58,55
20	59,69
Oct. 26	58,55
29	58,27
Nov. 12	58,49
13	59,30
24	58,75

β Cephei R.	
March 26	20 . 8 . 58,61
April 2	57,45
4	58,57
Aug. 29	57,41
30	57,90
Sept. 13	55,62
20	58,12
Oct. 26	57,39
29	57,73
Nov. 12	56,16
13	57,36
24	57,97

β Cephei SP.	
March 28	20 . 8 . 58,83

β Cephei SP. R.	
March 28	20 . 8 . 56,28

γ Capricorni.	
Oct. 26	107 . 23 . 23,29

δ Capricorni.	
Aug. 6	106 . 51 . 28,98

α Aquarii.	
Oct. 4	91 . 6 . 12,44
Dec. 10	12,84

α Aquarii R.			
	°	′	″
Oct. 4	91	6	12,77
Dec. 10			13,32

ι Aquarii.			
Aug. 6	104	39	7,62

σ Aquarii.			
Aug. 6	101	30	16,18
Sept. 30			14,61

∗ Æ. $22^h.33^m.37^s$.			
Oct. 31	24	11	6,51
Nov. 9			7,10
13			4,15

∗ Æ. $22^h.35^m.22^s$.			
Oct. 31	24	20	18,68
Nov. 1			20,00
9			20,65
13			21,41

ι Cephei.			
Nov. 9	24	39	1,59
10			2,13
13			3,16

ι Cephei SP.			
	°	′	″
March 6	24	39	1,38
April 10			1,79

ι Cephei SP. R.			
March 6	24	39	2,58
April 10			2,56

λ Aquarii.			
Nov. 24	98	26	21,52

α Pegasi.			
Jan. 5	75	39	53,22
Aug. 24			53,26
Sept. 3			50,61
8			53,33
12			51,57
13			52,00
Oct. 4			52,37
13			52,74
20			52,41
Dec. 8			54,33
11			52,04

α Pegasi R.			
Jan. 5	75	39	52,56
Aug. 24			53,21

α Pegasi R. *continued.*			
	°	′	″
Sept. 3	75	39	54,52
8			53,24
12			52,09
13			53,08
Oct. 4			52,75
13			54,23
20			53,05
Dec. 8			53,16
11			53,81

φ Aquarii.			
Sept. 3	96	55	12,93

κ^1 Piscium.			
Sept. 3	89	37	45,70
Oct. 2			47,54

γ Cephei.			
Sept. 12	13	16	17,02
27			17,65
Oct. 13			18,12
Dec. 3			17,10

γ Cephei R.			
Sept. 12	13	16	18,28
27			16,34
Oct. 13			16,65
Dec. 3			16,54

γ Cephei SP.			
	°	′	″
May 3	13	16	16,89
16			19,23

γ Cephei SP. R.			
May 3	13	16	16,57
16			17,24

q Piscium.			
Oct. 29	93	55	44,77

∗ Æ. $23^h.53^m.37^s$.			
Nov. 13	25	26	56,71
Dec. 8			56,21
11			55,73

∗ Æ. $23^h.56^m.51^s$.			
Nov. 13	26	7	16,13
Dec. 8			15,54
11			14,38

∗ Æ. $23^h.58^m.4^s$.			
Nov. 13	26	42	22,30
Dec. 8			22,14
11			19,81

CATALOGUE *of the* CONCLUDED MEAN NORTH POLAR DISTANCES, *Jan.* 1, 1838, *with the* ANNUAL VARIATIONS.

(The N.P.D. have been corrected for the Discordance of Zenith Points, and for the Error of the Assumed Co-latitude, in the manner explained in the Introduction.)

Name of Star.	Number of Observations.	Mean N.P.D. Jan. 1, 1838.	Annual Variation.	Name of Star.	Number of Observations.	Mean N.P.D. Jan. 1, 1838.	Annual Variation.
		° ′ ″	″			° ′ ″	″
α Andromedæ	1	61 . 48 . 13,59	– 20,043	*d* Orionis	3	97 . 18 . 32,24	– 2,558
α Andromedæ R.	1	12,19		31 Camelopardi SP.	1	30 . 9 . 32,29	– 1,770
t Piscium	2	88 . 57 . 27,94	– 19,990	31 Camelop. SP. R.	1	30,76	
α Cassiopeiæ	6	34 . 21 . 8,07	– 19,861	A.S.C. 721	3	76 . 0 . 23,01	– 1,644
α Cassiopeiæ R.	6	7,66		C Tauri	1	62 . 26 . 1,52	– 1,517
α Cassiopeiæ SP.	1	7,77		α Orionis	2	82 . 37 . 46,54	– 1,226
α Cassiopeiæ SP. R.	1	5,68		α Orionis R.	2	45,57	
A.S.C. 79	3	85 . 33 . 12,72	– 19,747	*a* Lyncis SP.	1	28 . 26 . 36,35	+ 0,195
γ Cassiopeiæ	4	30 . 9 . 43,73	– 19,632	*a* Lyncis SP. R.	1	36,16	
γ Cassiopeiæ R.	4	43,44		κ Aurigæ	1	60 . 27 . 0,14	+ 0,396
ε Piscium	3	82 . 59 . 0,63	– 19,486	μ Geminorum	1	67 . 24 . 36,97	+ 1,107
Polaris	25	1 . 33 . 16,40	– 19,332	μ Geminorum R.	1	37,57	
Polaris R.	24	16,73		ε Geminorum	1	64 . 42 . 57,15	+ 2,916
Polaris SP.	23	16,38		Castor	3	57 . 45 . 48,87	+ 7,161
Polaris SP. R.	23	16,60		Castor R.	3	47,67	
∗ Æ. 1^h. 21^m. 42^s.	2	33 . 38 . 33,33	– 18,782	Procyon	8	84 . 21 . 54,64	+ 8,682
η Piscium	2	75 . 29 . 28,13	– 18,761	Procyon R.	8	54,66	
ο Piscium	2	81 . 39 . 36,36	– 18,295	Pollux	10	61 . 35 . 19,80	+ 8,064
∗ Æ. 1^h. 41^m. 13^s.	1	36 . 56 . 19,86	– 18,119	Pollux R.	10	19,49	
∗ Æ. 1^h. 41^m. 57^s.	3	36 . 54 . 14,17	– 18,092	ψ^3 Cancri	3	59 . 51 . 49,91	+ 10,216
ε Cassiopeiæ SP.	3	27 . 7 . 53,12	– 18,081	ϕ^2 Cancri (preceding)	4	62 . 32 . 31,33	+ 11,243
ε Cassiopeiæ SP. R.	3	54,04		ϕ^2 Cancri (following)	4	62 . 32 . 27,18	+ 11,243
α Arietis	4	67 . 18 . 24,14	– 17,461	γ Cancri	2	67 . 57 . 13,41	+ 12,438
α Arietis R.	4	25,34		ι Ursæ Majoris	3	41 . 19 . 39,23	+ 13,380
ψ Arietis	1	73 . 0 . 59,37	– 16,343	ι Ursæ Majoris R.	3	39,60	
A.S.C. 271	1	66 . 3 . 42,54	– 16,048	*q* Cancri	2	71 . 36 . 43,25	+ 14,746
θ Persei	1	41 . 27 . 43,13	– 15,760	α Hydræ	2	97 . 57 . 36,48	+ 15,310
π Arietis	1	73 . 12 . 48,74	– 15,364	α Hydræ R.	2	36,49	
ε Arietis	1	69 . 18 . 43,13	– 14,806	λ Leonis	3	66 . 19 . 17,11	+ 15,466
α Ceti	2	86 . 33 . 0,26	– 14,575	ψ Leonis	1	75 . 14 . 26,50	+ 16,135
α Ceti R.	2	0,25		υ Ursæ Majoris SP.	3	30 . 12 . 11,53	+ 16,359
β Persei	3	49 . 40 . 24,52	– 14,349	υ Ursæ Maj. SP. R.	3	13,08	
β Persei R.	3	25,90		A.S.C. 1195	3	85 . 50 . 38,59	+ 16,946
δ Arietis	2	70 . 53 . 27,54	– 14,053	Regulus	11	77 . 14 . 37,86	+ 17,327
α Persei	5	40 . 43 . 18,31	– 13,397	Regulus R.	11	37,11	
α Persei R.	5	18,23		γ Leonis	9	69 . 20 . 29,63	+ 17,802
g Arietis	1	65 . 51 . 17,76	– 13,262	γ Leonis R.	2	30,06	
F Eridani	2	108 . 0 . 28,88	– 12,302	ρ Leonis	4	79 . 51 . 43,07	+ 18,305
η Tauri	9	66 . 24 . 4,77	– 11,682	m^2 Leonis	3	70 . 15 . 22,10	+ 18,750
η Tauri R.	6	5,02		*k* Leonis	3	74 . 57 . 6,13	+ 18,755
υ^1 Tauri	1	67 . 33 . 37,46	– 8,775	*l* Leonis	1	78 . 35 . 57,79	+ 18,843
80 Tauri	3	74 . 43 . 20,72	– 8,434	α Ursæ Majoris	30	27 . 22 . 33,83	+ 19,196
Aldebaran	7	73 . 49 . 21,04	– 7,979	α Ursæ Majoris R.	30	34,14	
Aldebaran R.	7	21,94		α Ursæ Majoris SP.	3	34,04	
τ Tauri	1	67 . 21 . 37,92	– 7,504	α Ursæ Maj. SP. R.	3	34,07	
ι Tauri	5	68 . 38 . 53,22	– 5,782	χ Leonis	6	81 . 47 . 22,77	+ 19,272
Capella	15	44 . 10 . 30,91	– 4,837	σ Leonis	4	83 . 5 . 1,12	+ 19,611
Capella R.	15	31,09		ι Leonis	5	78 . 34 . 45,20	+ 19,658
Rigel	3	98 . 23 . 39,34	– 4,647	υ Leonis	2	89 . 55 . 47,24	+ 19,850
Rigel R.	3	40,38		ν Virginis	5	82 . 33 . 47,34	+ 19,943
β Tauri	11	61 . 32 . 11,36	– 3,863	β Leonis	7	74 . 31 . 21,05	+ 19,969
β Tauri R.	11	12,34		β Leonis R.	7	21,07	
δ Orionis	5	90 . 25 . 29,79	– 3,194	β Virginis	5	87 . 19 . 20,29	+ 19,980
δ Orionis R.	5	30,50		γ Ursæ Majoris	15	35 . 24 . 15,95	+ 19,999
120 Tauri	3	71 . 34 . 56,07	– 3,173	γ Ursæ Majoris R.	15	15,53	
ζ Tauri	1	68 . 57 . 46,42	– 2,835	γ Ursæ Majoris SP.	1	14,47	
ϕ^2 Orionis	3	80 . 48 . 14,29	– 2,827	γ Ursæ Maj. SP. R.	1	14,92	

CATALOGUE of the Concluded Mean North Polar Distances, &c., *continued.*

Name of Star.	Number of Observations.	Mean N.P.D. Jan. 1, 1838.	Annual Variation.	Name of Star.	Number of Observations.	Mean N.P.D. Jan. 1, 1838.	Annual Variation.
		° ′ ″	″			° ′ ″	″
b Virginis..............	3	85 . 26 . 32,73	+ 20,028	δ Ursæ Minoris R....	15	3 . 24 . 34,13	− 2,133
n Virginis..............	3	89 . 53 . 10,54	+ 20,024	δ Ursæ Minoris SP..	7	34,92	
η Virginis..............	4	89 . 45 . 57,13	+ 20,019	δ Ursæ Min. SP. R..	7	33,83	
18 Comæ Berenices.	3	64 . 59 . 40,51	+ 19,959	α Lyræ.................	40	51 . 21 . 46,67	− 2,718
κ Draconis SP.	1	19 . 19 . 3,88	+ 19,912	α Lyræ R..............	38	46,52	
κ Draconis SP. R....	1	3,41		φ Sagittarii............	3	117 . 8 . 56,05	− 3,052
γ^1 Virginis...........	8	90 . 33 . 34,94	+ 19,835	β Lyræ.................	4	56 . 49 . 14,82	− 3,807
ψ Virginis............	3	98 . 39 . 27,40	+ 19,649	β Lyræ R.............	4	15,18	
θ Virginis............	6	94 . 40 . 19,78	+ 19,333	δ Draconis SP.........	1	22 . 37 . 24,06	− 6,234
Spica....................	7	100 . 18 . 48,38	+ 18,944	δ Draconis SP. R.....	1	24,28	
Spica R..........	7	47,77		γ Aquilæ...............	3	79 . 46 . 34,54	− 8,326
η Ursæ Majoris......	6	39 . 52 . 32,98	+ 18,134	γ Aquilæ R...........	3	35,07	
η Ursæ Majoris R...	6	33,14		α Aquilæ..............	9	81 . 33 . 15,61	− 8,667
η Bootis...............	4	70 . 47 . 15,65	+ 17,914	α Aquilæ R...........	9	15,38	
η Bootis R............	4	13,39		β Aquilæ..............	4	83 . 59 . 32,20	− 8,478
Arcturus	13	69 . 58 . 15,34	+ 18,962	β Aquilæ R..........	4	34,28	
Arcturus R............	13	15,51		*c* Sagittarii...........	1	118 . 9 . 9,46	− 9,424
λ Virginis..............	6	102 . 37 . 18,09	+ 16,907	κ Cephei SP..........	2	12 . 46 . 48,07	− 11,092
2 Libræ................	1	100 . 58 . 12,79	+ 16,700	κ Cephei SP. R.......	2	45,42	
α^1 Libræ...............	4	105 . 19 . 7,57	+ 15,280	λ Ursæ Minoris......	2	1 . 10 . 39,04	− 11,710
α^1 Libræ R...........	4	6,87		λ Ursæ Minoris R...	2	37,16	
α^2 Libræ...............	5	105 . 21 . 50,01	+ 15,270	α Cygni...............	12	45 . 17 . 43,85	− 12,588
α^2 Libræ R...........	5	49,02		α Cygni R............	12	43,31	
β Ursæ Minoris......	13	15 . 10 . 57,02	+ 14,701	η Cephei SP......... ..	3	28 . 47 . 18,74	− 13,813
β Ursæ Minoris R...	13	57,24		η Cephei SP. R.......	3	18,43	
β Ursæ Minoris SP.	1	55,85		∗ Æ. 21^{h}. 2^{m}. 38^{s}....	3	25 . 2 . 15,01	− 14,334
β Ursæ Min. SP. R.	1	57,49		α Cephei..............	13	28 . 5 . 56,78	− 15,040
20 Libræ..............	3	114 . 38 . 22,47	+ 14,530	α Cephei R...........	13	56,88	
ι^1 Libræ...............	3	109 . 10 . 23,24	+ 14,014	α Cephei SP..........	1	56,91	
β Libræ	5	98 . 46 . 47,12	+ 13,678	α Cephei SP. R......	1	55,92	
β Libræ R.......	5	48,01		6 Cephei..............	3	25 . 48 . 49,79	− 15,116
α Coronæ Borealis...	7	62 . 44 . 9,13	+ 12,375	ζ Capricorni..........	1	113 . 6 . 30,86	− 15,180
α Coronæ Borealis R.	7	8,21		β Aquarii.............	8	96 . 16 . 46,85	− 15,499
χ Libræ................	2	113 . 17 . 6,36	+ 12,184	β Aquarii R..........	8	46,64	
α Serpentis...........	4	83 . 3 . 34,25	+ 11,788	β Cephei..............	12	20 . 8 . 58,27	− 15,708
α Serpentis R.........	4	34,88		β Cephei R...........	12	57,93	
ζ Ursæ Minoris......	11	11 . 42 . 38,76	+ 10,747	β Cephei SP..........	1	58,71	
ζ Ursæ Minoris R...	11	38,96		β Cephei SP. R......	1	56,22	
ζ Ursæ Minoris SP..	4	38,20		γ Capricorni..........	1	107 . 23 . 23,75	− 15,936
ζ Ursæ Min. SP. R..	4	38,37		δ Capricorni..........	1	106 . 51 . 29,44	− 16,299
δ Scorpii...............	2	112 . 9 . 12,97	+ 10,747	α Aquarii	2	91 . 6 . 12,88	− 17,227
δ Ophiuchi...........	3	93 . 16 . 16,94	+ 9,607	α Aquarii R..........	2	12,99	
δ Ophiuchi R.........	3	16,78		ι Aquarii..............	1	104 . 39 . 8,07	− 17,236
η Draconis............	3	28 . 7 . 3,05	+ 8,336	σ Aquarii.............	2	101 . 30 . 15,83	− 18,225
η Draconis R..........	3	2,60		∗ Æ. 22^{h}. 33^{m}. 37^{s}..	3	24 . 11 . 5,67	− 18,635
η Draconis SP.	2	4,16		∗ Æ. 22^{h}. 35^{m}. 22^{s}..	4	24 . 20 . 19,94	− 18,691
η Draconis SP. R....	2	2,43		ι Cephei...............	3	24 . 39 . 2,03	− 18,940
τ Scorpii..	2	117 . 52 . 19,15	+ 8,047	ι Cephei SP...........	2	1,61	
25 Scorpii.............	3	115 . 13 . 31,73	+ 7,145	ι Cephei SP. R.......	2	2,37	
ε Ursæ Minoris..... .	1	7 . 42 . 27,90	+ 4,881	λ Aquarii..............	1	98 . 26 . 21,92	− 18,943
ε Ursæ Minoris R....	1	28,47		α Pegasi	11	75 . 39 . 52,88	− 19,273
A Ophiuchi...........	5	116 . 21 . 25,34	+ 6,021	α Pegasi R...........	11	53,08	
30 Scorpii	5	116 . 18 . 18,42	+ 5,936	φ Aquarii..............	1	96 . 55 . 13,30	− 19,479
ζ Draconis SP..... ...	3	24 . 5 . 6,95	+ 4,483	κ^1 Piscium............	2	89 . 37 . 46,82	− 19,710
ζ Draconis SP. R....	3	8,63		γ Cephei..............	4	13 . 16 . 17,30	− 19,898
θ Ophiuchi...........	2	114 . 49 . 48,62	+ 4,203	γ Cephei R............	4	17,30	
α Ophiuchi...........	2	77 . 18 . 57,71	+ 2,872	γ Cephei SP	2	17,77	
α Ophiuchi R.........	2	58,69		γ Cephei SP. R......	2	17,02	
79 Herculis...........	3	65 . 35 . 18,75	+ 2,572	*q* Piscium	1	93 . 55 . 45,09	− 20,034
3 Sagittarii...........	2	117 . 45 . 38,21	+ 2,020	∗ Æ. 23^{h}. 53^{m}. 37^{s}..	3	25 . 26 . 55,96	− 20,035
δ Sagittarii	3	119 . 53 . 18,20	− 0,884	∗ Æ. 23^{h}. 56^{m}. 51^{s}..	3	26 . 7 . 15,08	− 20,041
δ Ursæ Minoris..	15	3 . 24 . 34,63	− 2,133	∗ Æ. 23^{h}. 58^{m}. 4^{s}....	3	26 . 42 . 21,15	− 20,042

SIDEREAL INTERVALS OCCUPIED BY TRANSITS OF DIAMETERS,

AND

VERTICAL DIAMETERS,

OF THE

SUN, MOON, AND PLANETS,

DEDUCED

FROM THE TRANSIT AND CIRCLE OBSERVATIONS, AND COMPARED
WITH THOSE OF THE NAUTICAL ALMANAC.

1838.

I. SIDEREAL INTERVALS *occupied by* TRANSITS *of the* SUN'S DIAMETER *across the Meridian, and* VERTICAL DIAMETERS *of the* SUN; *compared with those of the* NAUTICAL ALMANAC.

Day of Observation.	Interval by Observation.	Seconds of Tabular Interval.	Excess of Latter.	Vertical Diameter by Observation.	Seconds of Tabular Diameter.	Excess of Latter.
1838.	m. s.	s.	s.	′ ″	″	″
Jan. 3	2 . 21,81	21,78	- 0,03	32 . 34,43	34,60	+ 0,17
4	21,69	21,68	- 0,01	32,82	34,60	+ 1,78
5	21,87	21,56	- 0,31	33,08	34,60	+ 1,52
13				35,11	33,80	- 1,31
15	20,26	20,02	- 0,24	36,76	33,60	- 3,16
16	20,20	19,84	- 0,36	34,42	33,40	- 1,02
17	20,03	19,66	- 0,37	32,42	33,20	+ 0,78
18	19,80	19,46	- 0,34	32,23	33,00	+ 0,77
19	19,61	19,26	- 0,35			
20	19,41	19,04	- 0,37	32,24	32,60	+ 0,36
29	17,43	17,08	- 0,35	32,65	30,40	- 2,25
Feb. 6	15,67	15,24	- 0,43	28,47	28,00	- 0,47
12	14,29	13,90	- 0,39	26,64	25,80	- 0,84
14	13,59	13,48	- 0,11	25,98	25,00	- 0,98
15	13,43	13,26	- 0,17	26,36	24,60	- 1,76
16	13,38	13,06	- 0,32	22,89	24,20	+ 1,31
20	12,61	12,26	- 0,35	22,89	22,40	- 0,49
22	12,13	11,88	- 0,25	20,11	21,60	+ 1,49
Mar. 6	10,13	10,06	- 0,07	17,30	15,60	- 1,70
7				14,75	15,20	+ 0,45
8	10,07	9,82	- 0,25			
9	9,71	9,72	+ 0,01	15,09	14,20	- 0,89
12	9,55	9,42	- 0,13	10,54	12,80	+ 2,26
20	9,26	8,90	- 0,36	10,99	8,40	- 2,59
21				8,42	7,80	- 0,62
27	9,26	8,76	- 0,50	4,21	4,40	+ 0,19
28	9,10	8,78	- 0,32	4,08	3,80	- 0,28
29	9,03	8,78	- 0,25	3,75	3,40	- 0,35
30	9,11	8,80	- 0,31	4,16	2,80	- 1,36
Apr. 2	9,07	8,88	- 0,19	0,20	1,20	+ 1,00
3	9,44	8,92	- 0,52	32 . 3,36	0,60	- 2,76
4				31 . 56,91	60,00	+ 3,09
5	9,32	9,02	- 0,30	58,25	59,40	+ 1,15
11	9,76	9,44	- 0,32	57,23	56,20	- 1,03
12	9,85	9,52	- 0,33	55,88	55,80	- 0,08
16	10,30	9,92	- 0,38	53,65	53,60	- 0,05
28				44,35	47,40	+ 3,05
May 3				46,78	45,20	- 1,58
4	12,52	12,40	- 0,12	42,15	44,60	+ 2,45
5	12,85	12,56	- 0,29	44,69	44,20	- 0,49
7	13,26	12,88	- 0,38	44,41	43,40	- 1,01
8	13,39	13,04	- 0,35	44,73	43,00	- 1,73
9	13,83	13,22	- 0,61	42,88	42,40	- 0,48
10	13,83	13,38	- 0,45	41,97	42,00	+ 0,03
11	13,97	13,54	- 0,43	42,78	41,60	- 1,18
12	14,01	13,70	- 0,31	42,48	41,20	- 1,28
15	14,46	14,18	- 0,28	41,43	40,00	- 1,43
16	2 . 15,03	14,36	- 0,67	31 . 40,62	39,60	- 1,02
May 18				31 . 38,60	38,80	+ 0,20
26	2 . 16,11	15,86	- 0,25	39,57	36,20	- 3,37
29				33,70	35,20	+ 1,50
June 1	16,48	16,62	+ 0,14			
2	16,98	16,74	- 0,24	35,12	34,20	- 0,92
7				32,96	33,00	+ 0,04
12	17,78	17,56	- 0,22	32,57	32,00	- 0,57
14	17,81	17,64	- 0,17	32,97	31,60	- 1,37
15	18,19	17,68	- 0,51	34,90	31,40	- 3,50
16	18,05	17,72	- 0,33	32,41	31,20	- 1,21
19	17,83	17,78	- 0,05	30,66	30,80	+ 0,14
21	18,04	17,78	- 0,26			
23	17,67	17,76	+ 0,09	30,29	30,40	+ 0,11
27	17,91	17,64	- 0,27	30,04	30,20	+ 0,16
July 2	17,66	17,34	- 0,32	30,31	30,20	- 0,11
4	16,93	17,20	+ 0,27	28,91	30,20	+ 1,29
5	17,28	17,10	- 0,18	31,85	30,20	- 1,65
7	17,17	16,92	- 0,25	33,75	30,40	- 3,35
9	17,15	16,70	- 0,45	30,49	30,40	- 0,09
10	16,83	16,58	- 0,25	31,52	30,60	- 0,92
13	16,68	16,22	- 0,46	31,09	30,80	- 0,29
16	16,15	15,80	- 0,35	31,02	31,00	- 0,02
17	16,19	15,66	- 0,53	31,85	31,20	- 0,65
19	15,75	15,36	- 0,39	31,16	31,40	+ 0,24
20	15,62	15,20	- 0,42	30,93	31,60	+ 0,67
21	15,24	15,04	- 0,20	32,89	31,60	- 1,29
23	14,93	14,72	- 0,21	33,18	32,00	- 1,18
26	14,47	14,22	- 0,25	33,87	32,60	- 1,27
27	14,36	14,06	- 0,30	32,43	33,00	+ 0,57
31				32,83	34,00	+ 1,17
Aug. 3	13,07	12,86	- 0,21	34,11	34,60	+ 0,49
6	12,48	12,36	- 0,12	35,31	35,60	+ 0,29
8				31,69	36,20	+ 4,51
11	11,85	11,52	- 0,33	36,15	37,00	+ 0,85
13	11,47	11,18	- 0,29	36,15	37,80	+ 1,65
14	11,38	11,02	- 0,36	37,07	38,00	+ 0,93
17	10,97	10,58	- 0,39	35,51	39,20	+ 3,69
18				38,80	39,60	+ 0,80
20	10,01	10,14	+ 0,13	41,34	40,40	- 0,94
21	10,27	10,00	- 0,27	40,88	40,80	- 0,08
25	9,30	9,48	+ 0,18	42,65	42,40	- 0,25
27	9,03	9,26	+ 0,23	43,53	43,20	- 0,33
28	9,17	9,14	- 0,03	45,42	43,80	- 1,62
30	8,68	8,94	+ 0,26	43,35	44,60	+ 1,25
31				43,93	45,20	+ 1,27
Sept. 1	8,75	8,76	+ 0,01	45,07	45,60	+ 0,53
3	8,54	8,60	+ 0,06	47,71	46,60	- 1,11
4	2 . 8,26	8,52	+ 0,26	31 . 46,09	47,00	+ 0,91

Day of Observation.	Interval by Observation.	Seconds of Tabular Interval.	Excess of Latter.	Vertical Diameter by Observation.	Seconds of Tabular Diameter.	Excess of Latter.	Day of Observation.	Interval by Observation.	Seconds of Tabular Interval.	Excess of Latter.	Vertical Diameter by Observation.	Seconds of Tabular Diameter.	Excess of Latter.
1838.	m. s.	s.	s.	′ ″	″	″	1838.	m. s.	s.	s.	′ ″	″	″
Sept. 7	2 . 8,21	8,32	+ 0,11	31 . 49,17	48,40	– 0,77	Nov. 6	2 . 15,24	14,90	– 0,34	32 . 20,34	20,20	– 0,14
10	7,99	8,16	+ 0,17	47,83	50,00	+ 2,17	7	15,37	15,12	– 0,25	19,79	20,60	+ 0,81
11	8,30	8,14	– 0,16	50,97	50,40	– 0,57	8	15,75	15,36	– 0,39	20,85	21,20	+ 0,35
12	8,04	8,10	+ 0,06	49,90	50,80	+ 0,90	12	16,65	16,32	– 0,33	22,22	22,80	+ 0,58
15	8,16	8,04	– 0,12	51,40	52,40	+ 1,00	13	16,98	16,54	– 0,44	22,94	23,20	+ 0,26
21	8,34	8,06	– 0,28	55,34	55,60	+ 0,26	14	17,00	16,78	– 0,22	21,97	23,60	+ 1,63
22	8,31	8,08	– 0,23	56,89	56,20	– 0,69	26	19,84	19,46	– 0,38	26,73	28,40	+ 1,67
26	8,71	8,26	– 0,45				29	20,60	20,04	– 0,56	30,13	29,40	– 0,73
28	8,93	8,38	– 0,55	31 . 62,71	59,40	– 3,31	30	20,49	20,22	– 0,27	27,88	29,60	+ 1,72
							Dec. 1	20,63	20,40	– 0,23	31,48	30,00	– 1,48
Oct. 3	9,04	8,80	– 0,24	32 . 4,36	2,20	– 2,16	3	21,19	20,74	– 0,45	29,30	30,60	+ 1,30
4				2,67	2,80	+ 0,13	4	21,11	20,90	– 0,21	27,55	30,80	+ 3,25
12	10,23	9,90	– 0,33	6,82	7,20	+ 0,38	5	21,11	21,04	– 0,07	31,25	31,00	– 0,25
17	10,96	10,68	– 0,28	10,98	9,80	– 1,18	6				30,46	31,20	+ 0,74
18	11,34	10,86	– 0,48	10,01	10,40	+ 0,39	10	21,99	21,68	– 0,31	29,97	32,20	+ 2,23
19	11,30	11,04	– 0,26	13,17	11,00	– 2,17	15	22,56	22,14	– 0,42	36,93	33,20	– 3,73
20	11,58	11,22	– 0,36	9,96	11,40	+ 1,44	18	22,60	22,30	– 0,30	32,84	33,60	+ 0,76
24	12,13	12,00	– 0,13	13,72	13,60	– 0,12	27	22,63	22,30	– 0,33	32,79	34,60	+ 1,81
29	13,39	13,06	– 0,33	16,83	16,00	– 0,83	28	22,56	22,26	– 0,30	34,12	34,60	+ 0,48
30	2 . 13,67	13,28	– 0,39	32 . 16,39	16,60	+ 0,21	31	2 . 22,52	22,08	– 0,44	32 . 36,57	34,60	– 1,97

II. SIDEREAL INTERVALS *occupied by* TRANSITS *of the* MOON'S DIAMETER *across the Meridian, and* VERTICAL DIAMETERS *of the* MOON, *compared with those of the* NAUTICAL ALMANAC.

Day of Observation.	Interval by Observation.	Seconds of Tabular Interval.	Excess of Latter.	Calculated Error of Tabular Diameter.	Day of Observation.	Diameter by Observation.	Seconds of Tabular Diameter.	Excess of Latter.
1838.	m. s.	s.	s.	″	1838.	′ ″	″	″
Mar. 10	2 . 2,84	2,24	– 0,60	– 8,66	Feb. 4	30 . 20,16	19,76	– 0,40
Apr. 9	2 . 4,33	3,74	– 0,59	– 8,51	9	29 . 32,88	25,70	– 7,18
June 7	2 . 26,84	25,92	– 0,92	– 11,80	Apr. 9	29 . 50,16	43,78	– 6,38
Aug. 5	2 . 26,92	26,52	– 0,40	– 5,39	May 8	30 . 19,43	12,36	– 7,07
Sept. 3	2 . 21,36	21,30	– 0,06	– 0,85	July 5	31 . 35,99	31,26	– 4,73
Nov. 1	2 . 24,91	24,42	– 0,49	– 6,74	Oct. 3	33 . 32,04	25,36	– 6,68
					Nov. 30	32 . 37,38	31,86	– 5,52
					Dec. 28	32 . 3,93	2,60	– 1,33

III. VERTICAL DIAMETERS *of* VENUS, *compared with those of the* NAUTICAL ALMANAC.

Day of Observation.	Diameter by Observation.	Tabular Diameter.	Excess of Latter.
1838.	″	″	″
Jan. 3	30,30	27,80	− 2,50
5	31,10	28,40	− 2,70
19	36,44	34,40	− 2,04
20	36,44	35,00	− 1,44
29	40,72	40,20	− 0,52
Feb. 6	46,74	45,60	− 1,14
12	49,58	49,80	+ 0,22
14	52,54	51,20	− 1,34
Mar. 15	59,84	55,60	− 4,24
16	59,38	54,80	− 4,58
19	56,40	52,60	− 3,80
20	54,72	52,00	− 2,72
26	50,56	47,60	− 2,96
28	49,00	46,20	− 2,80
April 1	46,10	43,20	− 2,90
2	45,36	42,60	− 2,76
4	44,06	41,20	− 2,86
10	39,70	37,40	− 2,30
11	40,20	36,80	− 3,40
May 3	27,88	26,80	− 1,08
4	27,02	26,40	− 0,62
6	26,16	25,80	− 0,36
7	26,78	25,40	− 1,38
8	26,66	25,20	− 1,46
9	25,70	24,80	− 0,90
10	25,88	24,60	− 1,28
1838.	″	″	″
May 11	26,24	24,20	− 2,04
14	24,14	23,60	− 0,54
15	21,10	23,20	+ 2,10
16	23,44	23,00	− 0,44
June 17	16,60	17,00	+ 0,40
22	16,92	16,40	− 0,52
29	18,70	15,60	− 3,10
July 4	16,72	15,20	− 1,52
6	17,00	15,00	− 2,00
9	16,12	14,60	− 1,52
11	15,84	14,40	− 1,44
15	16,88	14,00	− 2,88
19	15,56	13,80	− 1,76
22	13,92	13,60	− 0,32
23	13,42	13,40	− 0,02
25	13,44	13,20	− 0,24
26	14,70	13,20	− 1,50
27	13,60	13,20	− 0,40
31	12,52	13,00	+ 0,48
Aug. 2	13,38	12,80	− 0,58
10	14,28	12,40	− 1,88
13	13,38	12,20	− 1,18
16	13,36	12,00	− 1,36
17	13,04	12,00	− 1,04
22	13,46	11,80	− 1,66
23	13,14	11,80	− 1,34
24	13,54	11,60	− 1,94
1838.	″	″	″
Aug. 27	12,50	11,60	− 0,90
29	12,54	11,40	− 1,14
31	11,40	11,20	− 0,20
Sept. 2	12,88	11,20	− 1,68
3	13,22	11,20	− 2,02
6	12,72	11,20	− 1,52
10	11,58	11,00	− 0,58
11	12,22	11,00	− 1,22
19	11,72	10,60	− 1,12
20	11,22	10,60	− 0,62
21	12,52	10,60	− 1,92
27	12,08	10,60	− 1,48
Oct. 2	11,96	10,40	− 1,56
17	11,96	10,00	− 1,96
18	11,48	10,00	− 1,48
19	11,28	10,00	− 1,28
23	11,30	10,00	− 1,30
28	11,46	10,00	− 1,46
Nov. 5	11,40	9,80	− 1,60
7	11,06	9,80	− 1,26
9	11,44	9,80	− 1,64
11	10,34	9,80	− 0,54
12	11,14	9,80	− 1,34
13	11,38	9,80	− 1,58
Dec. 3	12,20	9,60	− 2,60

IV. SIDEREAL INTERVALS *occupied by* TRANSITS *of* JUPITER'S DIAMETER, *and* VERTICAL DIAMETERS *of* JUPITER; *compared with those of the* NAUTICAL ALMANAC.

Day of Observation.	Interval by Observation.	Tabular Interval.	Excess of Latter.	Diameter by Observation.	Tabular Diameter.	Excess of Latter.
1838.	s.	s.	s.	"	"	"
Feb. 10	3,18	2,96	– 0,22	42,44	41,00	– 1,44
11	3,11	2,96	– 0,15	42,38	41,00	– 1,38
12	2,96	2,96	0,00			
16	3,09	3,00	– 0,09	43,40	41,40	– 2,00
19	3,29	3,02	– 0,27	42,52	41,40	– 1,12
24	3,13	3,02	– 0,11	43,54	41,60	– 1,94
Mar. 3	2,94	3,04	+ 0,10	43,92	41,80	– 2,12
6	3,09	3,04	– 0,05	43,40	41,60	– 1,80
7	3,29	3,04	– 0,25	43,08	41,60	– 1,48
8	3,31	3,04	– 0,27	43,04	41,60	– 1,44
9	3,11	3,04	– 0,07	43,00	41,60	– 1,40
10	2,99	3,04	+ 0,05	43,34	41,60	– 1,74
12	3,27	3,04	– 0,23	43,38	41,60	– 1,78
15	3,22	3,02	– 0,20	43,64	41,60	– 2,04
16	3,09	3,02	– 0,07	43,76	41,40	– 2,36
17	3,21	3,02	– 0,19	42,96	41,40	– 1,56
20	3,24	3,00	– 0,24	44,18	41,20	– 2,98
21	3,25	3,00	– 0,25	43,12	41,20	– 1,92
26	3,14	2,98	– 0,16	42,68	41,00	– 1,68
27	3,14	2,98	– 0,16	42,92	41,00	– 1,92
28	3,07	2,96	– 0,11	42,90	41,00	– 1,90
30	3,20	2,96	– 0,24	42,30	40,80	– 1,50
Apr. 7	2,75	2,92	+ 0,17	41,88	40,20	– 1,68
9	3,07	2,92	– 0,15	41,88	40,00	– 1,88
10	2,89	2,92	+ 0,03	41,38	40,00	– 1,38
12	3,11	2,90	– 0,21	40,98	39,80	– 1,18
16	3,07	2,88	– 0,19	41,42	39,40	– 2,02
17	3,01	2,88	– 0,13	40,16	39,20	– 0,96
19	3,05	2,86	– 0,19	40,42	39,00	– 1,42
21	2,99	2,84	– 0,15	40,16	38,80	– 1,36
24	3,17	2,80	– 0,37	40,54	38,60	– 1,94
27	3,09	2,78	– 0,31	39,20	38,20	– 1,00
May 3	2,94	2,74	– 0,20	40,34	37,60	– 2,74
5	3,07	2,70	– 0,37	38,90	37,40	– 1,50
7	2,83	2,70	– 0,13	38,36	37,20	– 1,16
8	3,24	2,68	– 0,56	38,96	37,00	– 1,96
10	2,81	2,66	– 0,15	39,10	36,80	– 2,30
11	2,73	2,66	– 0,07	38,56	36,60	– 1,96
12	2,82	2,66	– 0,16	38,14	36,60	– 1,54
May 15	2,54	2,64	+ 0,10	36,98	36,20	– 0,78
16	2,74	2,62	– 0,12	38,86	36,20	– 2,66
17	2,76	2,62	– 0,14	37,34	36,00	– 1,34
18	2,41	2,62	+ 0,21	38,42	36,00	– 2,42
22	2,44	2,60	+ 0,16	37,98	35,40	– 2,58
29	2,44	2,54	+ 0,10	35,44	35,00	– 0,44
June 5	2,58	2,48	– 0,10	34,18	34,20	+ 0,02
6	2,33	2,46	+ 0,13	36,16	34,20	– 1,96
7	2,64	2,46	– 0,18	36,58	34,00	– 2,58
8	2,62	2,44	– 0,18	35,50	33,80	– 1,70
9	2,81	2,44	– 0,37	34,36	33,80	– 0,56
12	2,15	2,42	+ 0,27	35,06	33,40	– 1,66
21	2,49	2,38	– 0,11	33,46	32,60	– 0,86
22	2,55	2,36	– 0,19	34,28	32,60	– 1,68
23	2,34	2,36	+ 0,02	31,28	32,40	+ 1,12
29	2,35	2,30	– 0,05			
July 2	2,39	2,30	– 0,09	30,46	31,80	+ 1,34
5	2,42	2,28	– 0,14			
6	2,62	2,28	– 0,34			
9	2,57	2,26	– 0,31	28,30	31,20	+ 2,90
18	1,87	2,20	+ 0,33			
20	2,27	2,20	– 0,07			
28	2,47	2,16	– 0,31	29,58	30,00	+ 0,42
Aug. 11	1,94	2,12	+ 0,18	30,44	29,44	– 1,00
Oct. 31				29,82	29,40	– 0,42
Nov. 5	2,09	2,13	+ 0,04	30,00	29,66	– 0,34
7	2,29	2,14	– 0,15	28,88	29,74	+ 0,86
9	2,70	2,14	– 0,56	33,88	29,80	– 4,08
12	2,08	2,16	+ 0,08	31,40	30,00	– 1,40
Dec. 3	2,54	2,24	– 0,30	32,10	31,40	– 0,70
7	2,26	2,26	0,00	33,66	31,60	– 2,06
9	2,36	2,28	– 0,08	31,32	31,80	+ 0,48
13	2,41	2,30	– 0,11	33,20	32,20	– 1,00
14	1,66	2,32	(+ 0,66)	34,80	32,20	– 2,60
19	2,39	2,34	– 0,05			
26	2,86	2,40	– 0,46			

V. SIDEREAL INTERVALS *occupied by* TRANSITS *of* SATURN'S RING, *and vertical Diameters of* SATURN; *compared with those of the* NAUTICAL ALMANAC.

Day of Observation.	Interval by Observation.	Tabular Interval.	Excess of Latter.	Diameter by Observation.	Tabular Diameter.	Excess of Latter.	Day of Observation.	Interval by Observation.	Tabular Interval.	Excess of Latter.	Diameter by Observation.	Tabular Diameter.	Excess of Latter.
1838.	s.	s.	s.	"	"	"	1838.	s.	s.	s.	"	"	"
Feb. 5	2,69	2,61	- 0,08	16,88	15,00	- 1,88	May 29	3,06	2,92	- 0,14	15,12	16,80	+ 1,68
13	3,23	2,64	- 0,59	18,12	15,20	- 2,92							
14	3,11	2,64	- 0,47	18,12	15,20	- 2,92	June 2	3,06	2,92	- 0,14	16,50	16,80	+ 0,30
15	2,96	2,64	- 0,32	18,48	15,20	- 3,28	4	3,16	2,89	- 0,27	16,64	16,60	- 0,04
							8	3,18	2,89	- 0,29	16,88	16,60	- 0,28
Apr. 24	3,32	2,89	- 0,43	18,70	16,60	- 2,10	9	2,94	2,89	- 0,05	15,64	16,60	+ 0,96
27	3,25	2,89	- 0,36	18,40	16,60	- 1,80	12	2,92	2,89	- 0,03	17,52	16,60	- 0,92
							15	3,16	2,89	- 0,27	15,80	16,60	+ 0,80
May 1	3,21	2,92	- 0,29	17,38	16,80	- 0,58	19	2,91	2,86	- 0,05	17,50	16,40	- 1,10
3	3,39	2,92	- 0,47	16,66	16,80	+ 0,14	21	3,24	2,86	- 0,38	15,86	16,40	+ 0,54
4	3,21	2,92	- 0,29	16,84	16,80	- 0,04	22	3,05	2,86	- 0,19	17,62	16,40	- 1,22
7	3,43	2,92	- 0,51	18,18	16,80	- 1,38	23				16,86	16,40	- 0,46
8	3,41	2,92	- 0,49	18,38	16,80	- 1,58	29	2,96	2,82	- 0,14			
10	3,41	2,92	- 0,49	18,14	16,80	- 1,34							
11	3,24	2,92	- 0,32				July 4	3,04	2,82	- 0,22	18,08	16,20	- 1,88
12				16,50	16,80	+ 0,30	5	2,98	2,82	- 0,16			
14	3,07	2,92	- 0,15	16,90	16,80	- 0,10	6	2,39	2,82	- 0,57			
15	3,36	2,92	- 0,44	16,18	16,80	+ 0,62	7	2,99	2,82	- 0,17	17,72	16,20	- 1,52
16	3,31	2,92	- 0,39	15,42	16,80	+ 1,38	9	2,94	2,79	- 0,15	17,92	16,00	- 1,92
22	3,16	2,92	- 0,24	15,30	16,80	+ 1,50	16	2,95	2,79	- 0,16	15,64	16,00	+ 0,36
26	3,34	2,92	- 0,42	15,26	16,80	+ 1,54	18				13,72	16,00	+ 2,28
28	3,07	2,92	- 0,15	15,44	16,80	+ 1,36	20	2,94	2,75	- 0,19			

OBSERVATIONS OF SIDEREAL INTERVALS

OCCUPIED BY

TRANSITS OF THE MOON'S DIAMETER,

WITH THE

FIVE-FEET EQUATOREAL AND CLOCK GRAHAM.

1838.

Day of Observation.	Object Observed.	Times by Graham.					Means.	Difference of Means.	Observer.
		I.	II.	III.	IV.	V. Wire.			
1838.		s.	s.	s.	s.	h. m. s.	h. m. s.	m. s.	
April 9	(*a*) Moon 1 L.	56,6	7,4	18,3	29,0	13 . 28 . 39,8	13 . 28 . 18,22	2 . 3,90	C.
	2 L.	0,3	11,3	22,1	33,0	13 . 30 . 43,9	13 . 30 . 22,12		
	Moon 1 L.	11,0	21,8	32,5	43,5	15 . 34 . 54,4	15 . 34 . 32,64	2 . 4,04	C.
	(*b*) 2 L.	14,8	25,8	36,6	47,6	15 . 36 . 58,6	15 . 36 . 36,68		
	Moon 1 L.	41,7	52,4	3,4	14,3	15 . 40 . 25,3	15 . 40 . 3,42	2 . 4,40	C.
	2 L.	46,2	57,0	7,8	18,6	15 . 42 . 29,5	15 . 42 . 7,82		
	Moon 1 L.	50,2	0,9	11,7	22,5	15 . 44 . 33,4	15 . 44 . 11,74	2 . 4,24	C.
	2 L.	54,3	5,2	16,0	26,7	15 . 46 . 37,7	15 . 46 . 15,98		
	(*c*) Moon 1 L.	23,7	34,5	45,5	56,3	15 . 49 . 7,4	15 . 48 . 45,48	2 . 4,44	C.
	2 L.	28,3	39,0	50,0	0,7	15 . 51 . 11,6	15 . 50 . 49,92		
	(*d*) Moon 1 L.	19,4	30,3	41,1	51,8	15 . 53 . 2,6	15 . 52 . 41,04	2 . 4,32	C.
	2 L.	23,8	34,3	45,3	56,2	15 . 55 . 7,2	15 . 54 . 45,36		
	(*e*) Moon 1 L.	31,6	42,4	53,3		15 . 59 . 15,2	15 . 58 . 50,63	2 . 4,30	C.
	2 L.	36,0	46,7	57,6	(8,4)	16 . 1 . 19,4	16 . 0 . 54,93		
	Moon 1 L.	36,3	47,1	58,0	8,7	16 . 5 . 19,8	16 . 4 . 57,98	2 . 4,40	C.
	2 L.	40,7	51,5	2,4	13,2	16 . 7 . 24,1	16 . 7 . 2,38		
	(*f*) Moon 1 L.	23,6	34,1	45,2	55,5	16 . 9 . 7,0	16 . 8 . 45,08	2 . 4,40	C.
	2 L.	27,8	38,5	49,3	0,5	16 . 11 . 11,3	16 . 10 . 49,48		
	(*g*) Moon 1 L.	19,7	30,5	41,3	52,2	16 . 13 . 3,0	16 . 12 . 41,34	2 . 4,42	C.
	2 L.	24,1	34,8	45,7	56,6	16 . 15 . 7,6	16 . 14 . 45,76		
Sept. 3	Moon 1 L.	30,6	41,4	52,6	3,7	1 . 15 . 14,6	1 . 14 . 52,58	2 . 20,92	C.
	2 L.	51,4	2,4	13,5	24,4	1 . 17 . 35,8	1 . 17 . 13,50		
	Moon 1 L.	37,9	48,8	59,8	11,1	1 . 19 . 22,0	1 . 18 . 59,92	2 . 21,00	G.
	2 L.	58,7	9,7	21,1	31,9	1 . 21 . 43,2	1 . 21 . 20,92		
	Moon 1 L.	38,8	49,9	0,7	11,7	1 . 23 . 22,8	1 . 23 . 0,78	2 . 21,06	C.
	2 L.	0,0	10,8	21,7	32,8	1 . 25 . 43,9	1 . 25 . 21,84		
	(*h*) Moon 1 L.	18,1	28,8	40,0	50,9	1 . 27 . 1,8	1 . 26 . 39,92	2 . 20,80	G.
	2 L.	38,7	49,6	0,8	11,7	1 . 29 . 22,8	1 . 29 . 0,72		
	Moon 1 L.	12,3	23,2	34,1	45,2	1 . 30 . 56,5	1 . 30 . 34,26	2 . 21,10	G.
	2 L.	33,5	44,3	55,2	6,2	1 . 33 . 17,6	1 . 32 . 55,36		
	Moon 1 L.	46,7	57,6	8,8	19,6	1 . 34 . 30,9	1 . 34 . 8,72	2 . 21,02	G.
	2 L.	7,8	18,4	29,8	40,9	1 . 36 . 51,8	1 . 36 . 29,74		
	Moon 1 L.	46,4	57,3	8,6	19,5	1 . 38 . 30,6	1 . 38 . 8,48	2 . 21,14	G.
	2 L.	7,7	18,5	29,6	40,8	1 . 40 . 51,5	1 . 40 . 29,62		
	Moon 1 L.	53,4	4,5	15,6	26,6	1 . 42 . 37,8	1 . 42 . 15,58	2 . 20,94	C.
	2 L.	14,6	25,5	36,5	47,4	1 . 44 . 58,6	1 . 44 . 36,52		

(*a*) Observation taken shortly before the Eclipse, when the Moon was in the Penumbra. 2 L. not so satisfactorily observed as 1 L. (*b*) 2 L. not good; too much obscured by the Eclipse. (*c*) Waving and unsatisfactory. (*d*) 1 L. confused. Wire III was written down 40,1. (*e*) Wire IV of 1 L. being missed in observing, Wire IV of 2 L. is omitted in the calculation. (*f*) 1 L. not good: 2 L. cloudy. (*g*) 1 L. good. Too cloudy for more observations. (*h*) Wire V of 1 L. was written down 0,8.

THE following comparisons were made with Hardy by means of the Solar Chronometer (*W*) and Sidereal Chronometer (*U*), to determine the errors of Graham.

Day of Comparison.	Clock.	Clock Time.	Chron.	Chronometer Time.	Day of Comparison.	Clock.	Clock Time.	Chron.	Chronometer Time.
		h. m. s.		h. m. s.			h. m. s.		h. m. s.
April 9	H.	13 . 42 . 50	W.	12 . 33 . 10,5	April 9	H.	16 . 24 . 51	W.	15 . 14 . 45,0
	H.	13 . 46 . 0	W.	12 . 36 . 20,0					
	G.	14 . 20 . 19	W.	13 . 8 . 15,0	Sept. 3	G.	1 . 35 . 59	U.	1 . 21 . 50,0
	G.	14 . 22 . 25	W.	13 . 10 . 20,5		G.	1 . 36 . 49	U.	1 . 22 . 40,0
	G.	16 . 20 . 44	W.	15 . 8 . 20,0		H.	1 . 37 . 19	U.	1 . 28 . 37,5
	G.	16 . 23 . 25	W.	15 . 11 . 0,5		H.	1 . 37 . 55	U.	1 . 29 . 13,6

By each set of comparisons on April 9 Graham was $1^{m}.\ 48^{s},5$ fast. On Sept. 3 Graham was $5^{m}.\ 8^{s}$ fast.

The mean results of the two series of observations are consequently as follows:

Day of Observation	April 9	Sept. 3
	h. m. s.	h. m. s.
Mean of the times of observation by Graham	15 . 40 . 24,9	1 . 29 . 45,5
Sidereal Time	15 . 38 . 36,4	1 . 24 . 37,5
Greenwich Mean Solar Time	14 . 26 . 42,5	14 . 33 . 8,7
Moon's Æ. at that time	13 . 12 . 38,1	22 . 45 . 22,4
Mean Interval of Transits of Limbs by observation, corrected for defect of Illumination	2 . 4,29	2 . 21,04
Interval interpolated from Nautical Almanac	2 . 4,00	2 . 21,00
Error of Tables	– 0,29	– 0,04
Calculated Error of Tabular Diameter in arc	– 4″,18	– 0″,56

RIGHT ASCENSIONS AND NORTH POLAR DISTANCES

(THE LATTER CORRECTED FOR THE DISCORDANCE OF ZENITH POINTS
AND FOR THE ALTERATION OF THE CO-LATITUDE)

OF THE CENTERS OF THE

SUN, MOON, AND PLANETS,

OBSERVED IN THE YEAR 1838,

WITH THE

GREENWICH MEAN SOLAR TIMES OF OBSERVATION,

AND COMPARED WITH THE PLACES INTERPOLATED FROM
THE NAUTICAL ALMANAC.

Greenwich Mean Solar Time of Transit of Center.	Limb Observed.	R. A. of Center from Observation.	Seconds of Tabular R.A.	Errors of Tables.	Limb Observed.	N.P.D. of Center from Observation.	Seconds of Tabular N.P.D.	Errors of Tables.
d. h. m. s.		*h. m. s.*	*s.*	*s.*		° ′ ″	″	″
Jan. 3. 0. 4.23,3		18.55.26,23	26,15	−0,08		112.51. 4,02	3,00	−1,02
4. 0. 4.50,9		18.59.50,49	50,30	−0,19		112.44.59,89	59,10	−0,79
5. 0. 5.18,0		19. 4.14,17	14,01	−0,16		112.38.27,69	28,31	+0,62
13. 0. 8.36,3	II.	19.39. 5,49	5,12	−0,37		111.30.35,12	34,07	−1,05
15. 0. 9.19,7		19.47.42,10	41,94	−0,16		111. 9.17,37	21,58	+4,21
16. 0. 9.40,5		19.51.59,55	59,37	−0,18		110.58. 8,43	8,69	+0,26
17. 0.10. 0,4		19.56.16,08	16,11	+0,03		110.46.30,72	31,79	+1,07
18. 0.10.20,2		20. 0.32,49	32,16	−0,33		110.34.28,92	31,20	+2,28
19. 0.10.38,7		20. 4.47,56	47,51	−0,05				
20. 0.10.56,4		20. 9. 1,91	2,13	+0,22		110. 9.18,25	19,91	+1,66
29. 0.13. 4,1		20.46.39,02	38,88	−0,14		107.57.56,17	58,16	+1,99
Feb. 6. 0.14. 1,4		21.19. 8,87	8,61	−0,26		105.39.17,02	17,21	+0,19
12. 0.14. 9,6		21.42.56,39	56,38	−0,01		103.43.56,25	57,52	+1,27
14. 0.14. 6,4		21.50.46,37	46,13	−0,24		103. 3.36,88	38,63	+1,75
15. 0.14. 3,9		21.54.40,34	39,91	−0,43		102.43. 8,78	9,74	+0,96
16. 0.14. 0,1		21.58.33,12	32,98	−0,14		102.22.28,05	28,64	+0,59
20. 0.13.39,3		22.13.58,46	58,40	−0,06		100.57.47,31	48,65	+1,34
22. 0.13.25,0		22.21.37,31	37,15	−0,16		100.14.24,50	25,36	+0,86
Mar. 6. 0.11.10,6		23. 6.41,16	40,70	−0,46		95.42.52,37	53,48	+1,11
7. 0.10.55,9	II.	23.10.22,97	22,73	−0,24		95.19.35,45	37,28	+1,83
8. 0.10.41,1		23.14. 4,66	4,36	−0,30	S.	94.56.12,94	16,98	+4,04
9. 0.10.25,5		23.17.45,59	45,58	−0,01		94.32.51,20	53,08	+1,88
12. 0. 9.37,8		23.28.47,37	47,15	−0,22		93.22.20,65	22,19	+1,54
20. 0. 7.18,7		23.58. 0,39	0,14	−0,25		90.12.59,78	61,39	+1,61
21. 0. 7. 0,4						89.49.17,92	19,59	+1,67
27. 0. 5.10,0		0.23.27,20	27,17	−0,03		87.27.37,64	40,68	+3,04
28. 0. 4.51,8		0.27. 5,43	5,20	−0,23		87. 4.10,92	12,88	+1,96
29. 0. 4.33,3		0.30.43,46	43,23	−0,23		86.40.45,78	48,68	+2,90
30. 0. 4.14,9		0.34.21,60	21,30	−0,30		86.17.26,01	28,28	+2,27
Apr. 2. 0. 3.20,0		0.45.16,24	15,91	−0,33		85. 7.53,63	54,37	+0,74
3. 0. 3. 1,8		0.48.54,51	54,30	−0,21		84.44.50,91	53,37	+2,46
4. 0. 2.44,1	II.	0.52.33,30	32,81	−0,49		84.21.55,92	57,87	+1,95
5. 0. 2.25,8		0.56.11,52	11,47	−0,05		83.59. 5,95	8,57	+2,62
11. 0. 0.42,9		1.18. 7,63	7,64	+0,01		81.44.33,58	36,16	+2,58
12. 0. 0.26,9		1.21.48,17	47,91	−0,26		81.22.37,14	37,76	+0,62
15.23.59.25,3		1.36.32,67	32,32	−0,35		79.56.11,32	11,75	+0,43
27.23.57. 0,4	II.	2.21.25,96	25,37	−0,59		75.54. 4,87	4,31	−0,56
May 2.23.56.20,1	II.	2.40.28,39	27,99	−0,40		74.22.28,85	30,29	+1,44
3.23.56.13,6		2.44.18,40	18,09	−0,31		74. 4.56,74	56,88	+0,14
4.23.56. 7,8		2.48. 9,14	8,73	−0,41		73.47.38,71	39,38	+0,67
6.23.55.57,7		2.55.52,14	51,65	−0,49		73.13.52,44	53,17	+0,73
7.23.55.53,4		2.59.44,32	43,96	−0,36		72.57.24,53	24,97	+0,44
8.23.55.49,9		3. 3.37,43	36,84	(−0,59)		72.41.13,46	13,66	+0,20
9.23.55.46,6		3. 7.30,68	30,29	−0,39		72.25.18,73	19,66	+0,93
10.23.55.44,2		3.11.24,82	24,34	−0,48		72. 9.42,40	43,15	+0,75
11.23.55.42,3		3.15.19,42	18,97	−0,45		71.54.23,85	24,45	+0,60
14.23.55.39,9		3.27. 6,71	6,41	−0,30		71.10.18,59	17,83	−0,76
15.23.55.40,4		3.31. 3,77	3,40	−0,37		70.56.13,22	13,03	−0,19
17.23.55.43,2	II.	3.38.59,74	59,14	−0,60		70.29. 1,38	1,42	+0,04
25.23.56.15,8		4.11. 4,80	4,54	−0,26		68.53.46,93	47,67	+0,74
28.23.56.36,2						68.23.57,64	58,55	+0,91
31.23.57. 0,7		4.35.29,21	29,21	0,00*				

* No stars on the same day.

Greenwich Mean Solar Time of Transit of Center.	Limb Observed.	R.A. of Center from Observation.	Seconds of Tabular R.A.	Errors of Tables.	Limb Observed.	N.P.D. of Center from Observation.	Seconds of Tabular N.P.D.	Errors of Tables.
d. h. m. s.		*h. m. s.*	*s.*	*s.*		° ′ ″	″	″
June 1.23.57. 9,7		4.39.34,84	34,77	−0,07		67.49.28,95	28,73	−0,22
6.23.58. 0,3	II.	5. 0. 8,30	7,90	−0,40		67.15. 4,00	4,30	+0,30
11.23.58.57,7		5.20.48,69	48,49	−0,20		66.50.35,10	36,06	+0,96
13.23.59.22,4		5.29. 6,59	6,33	−0,26		66.43.38,60	38,85	+0,25
14.23.59.34,9		5.33.15,66	15,51	−0,15		66.40.46,58	47,04	+0,46
15.23.59.47,7		5.37.25,04	24,84	−0,20		66.38.18,83	19,94	+1,11
19. 0. 0.26,5		5.49.53,64	53,48	−0,16		66.33.25,95	27,12	+1,17
21. 0. 0.52,7		5.58.13,03	12,87	−0,16				
23. 0. 1.19,1		6. 6.32,58	32,22	−0,36		66.32.44,20	44,39	+0,19
25. 0. 1.44,6	I.	6.14.51,31	51,30	−0,01*	N.	66.34.53,19	51,98	−1,21
27. 0. 2.10,4		6.23.10,29	9,86	−0,43*		66.38.38,22	38,66	+0,44
30. 0. 2.46,7					S.	66.47.22,25	23,24	+0,99
July 2. 0. 3.10,3		6.43.53,14	52,81	−0,33		66.55.15,68	15,03	−0,65
4. 0. 3.32,2		6.52. 8,25	8,15	−0,10		67. 4.44,96	43,42	−1,54
5. 0. 3.43,1		6.56.15,66	15,35	−0,31		67.10. 3,22	3,61	+0,39
7. 0. 4. 3,2		7. 4.28,98	28,73	−0,25		67.21.53,78	55,00	+1,22
9. 0. 4.21,9		7.12.40,89	40,64	−0,25		67.35.18,94	20,28	+1,34
10. 0. 4.30,6		7.16.46,19	46,01	−0,18		67.42.38,31	37,88	−0,43
12. 0. 4.46,9					S.	67.58.21,49	21,86	+0,37
13. 0. 4.54,6		7.28.59,87	59,61	−0,26		68. 6.48,24	48,06	−0,18
16. 0. 5.14,3		7.41. 9,32	9,19	−0,13		68.34.21,11	21,24	+0,13
17. 0. 5.20,0		7.45.11,54	11,42	−0,12		68.44.16,28	16,43	+0,15
19. 0. 5.30,0		7.53.14,73	14,38	−0,35		69. 5.10,48	11,92	+1,44
20. 0. 5.34,1		7.57.15,38	15,06	−0,32		69.16.10,50	11,62	+1,12
21. 0. 5.37,7		8. 1.15,53	15,19	−0,34		69.27.31,93	32,31	+0,38
23. 0. 5.43,2		8. 9.14,17	13,78	−0,39		69.51.15,28	15,80	+0,52
26. 0. 5.46,6		8.21. 7,29	7,23	−0,06		70.29.22,82	21,99	−0,83
27. 0. 5.46,8		8.25. 4,00	3,84	−0,16		70.42.43,56	43,28	−0,28
31. 0. 5.41,1	II.	8.40.44,56	44,07	−0,49		71.39.15,77	16,66	+0,89
Aug. 3. 0. 5.29,8		8.52.22,88	22,74	−0,14		72.24.49,20	51,24	+2,04
6. 0. 5.13,3		9. 3.56,04	55,92	−0,12		73.12.58,21	59,63	+1,42
8. 0. 4.59,0	I.	9.11.34,83	35,05	+0,22		73.46.28,16	26,92	−1,24
11. 0. 4.34,2		9.22.59,55	59,46	−0,09		74.38.32,38	35,11	+2,73
13. 0. 4.14,6		9.30.33,06	32,98	−0,08		75.14.34,73	35,50	+0,77
14. 0. 4. 4,2		9.34.19,19	18,95	−0,24		75.32.56,94	57,20	+0,26
17. 0. 3.29,3		9.45.33,81	33,72	−0,09		76.29.23,16	24,69	+1,53
18. 0. 3.16,4	I.	9.49.17,51	17,63	+0,12		76.48.41,39	40,28	−1,11
20. 0. 2.50,2		9.56.44,29	43,97	−0,32		77.27.48,85	48,98	+0,13
21. 0. 2.35,8		10. 0.26,39	26,41	+0,02		77.47.40,80	41,38	+0,58
22. 0. 2.21,2	I.	10. 4. 8,39	8,39	0,00				
25. 0. 1.35,0		10.15.11,67	11,59	−0,08		79. 9. 4,23	4,06	−0,17
27. 0. 1. 2,0		10.22.31,67	31,56	−0,11		79.50.46,76	48,16	+1,40
28. 0. 0.44,8		10.26.10,96	10,95	−0,01		80.11.52,77	54,75	+1,98
30. 0. 0. 9,4		10.33.28,59	28,60	+0,01		80.54.35,17	35,45	+0,28
30.23.59.51,0	II.	10.37. 6,69	6,90	+0,21		81.16. 7,90	8,85	+0,95
31.23.59.32,4		10.40.44,66	44,85	+0,19		81.37.50,03	50,54	+0,51
Sept. 2.23.58.54,5		10.47.59,72	59,86	+0,14		82.21.36,63	37,64	+1,01
3.23.58.35,5		10.51.37,29	36,94	−0,35		82.43.42,22	42,34	+0,12
4.23.58.15,6					N.	83. 5.54,66	54,14	−0,52
5.23.57.55,6	II.	10.58.50,35	50,39	+0,04	S.	83.28.13,50	12,83	−0,67
6.23.57.35,5		11. 2.26,75	26,80	+0,05		83.50.37,64	38,03	+0,39
9.23.56.34,4		11.13.15,10	15,03	−0,07		84.58.30,58	29,73	−0,85
10.23.56.13,8		11.16.50,97	50,83	−0,14		85.21.18,34	18,03	−0,31
11.23.55.52,9		11.20.26,66	26,55	−0,11		85.44.11,39	11,33	−0,06

* No stars on the same days.

Greenwich Mean Solar Time of Transit of Center.	Limb Observed.	R. A. of Center from Observation.	Seconds of Tabular R.A.	Errors of Tables.	Limb Observed.	N.P.D. of Center from Observation.	Seconds of Tabular N.P.D.	Errors of Tables.
d. h. m. s.		h. m. s.	s.	s.		° ′ ″	″	″
Sept. 14 . 23 . 54 . 50,4		11 . 31 . 13,58	13,25	– 0,33		86 . 53 . 17,63	17,32	– 0,31
20 . 23 . 52 . 44,2		11 . 52 . 46,43	46,30	– 0,13		89 . 12 . 57,32	56,92	– 0,40
21 . 23 . 52 . 23,6		11 . 56 . 22,28	21,97	– 0,31		89 . 36 . 20,72	20,62	– 0,10
25 . 23 . 51 . 1,2		12 . 10 . 45,82	45,73	– 0,09				
27 . 23 . 50 . 20,9		12 . 17 . 58,61	58,55	– 0,06		91 . 56 . 51,97	52,42	+ 0,45
Oct. 2 . 23 . 48 . 44,7		12 . 36 . 4,90	4,60	– 0,30		93 . 53 . 32,98	32,82	– 0,16
3 . 23 . 48 . 26,3	II.	12 . 39 . 42,95	42,69	– 0,26		94 . 16 . 46,67	46,12	– 0,55
10 . 23 . 46 . 28,5	II.	13 . 5 . 20,72	20,44	– 0,28	N.	96 . 57 . 35,98	35,33	– 0,65
11 . 23 . 46 . 13,3		13 . 9 . 2,09	1,96	– 0,13		97 . 20 . 15,58	14,73	– 0,85
16 . 23 . 45 . 6,6		13 . 27 . 37,97	37,70	– 0,27		99 . 11 . 54,63	55,34	+ 0,71
17 . 23 . 44 . 54,4		13 . 31 . 22,23	22,58	(+ 0,35)		99 . 33 . 53,87	53,44	– 0,43
18 . 23 . 44 . 43,8		13 . 35 . 8,19	8,06	– 0,13		99 . 55 . 41,32	43,14	+ 1,82
19 . 23 . 44 . 33,5		13 . 38 . 54,37	54,19	– 0,18		100 . 17 . 23,37	24,05	+ 0,68
23 . 23 . 43 . 58,5		13 . 54 . 5,52	5,21	– 0,31		101 . 42 . 32,25	32,26	+ 0,01
28 . 23 . 43 . 30,0		14 . 13 . 19,69	19,53	– 0,16		103 . 24 . 51,91	51,37	– 0,54
29 . 23 . 43 . 26,4		14 . 17 . 12,65	12,59	– 0,06		103 . 44 . 42,34	42,38	+ 0,04
Nov. 5 . 23 . 43 . 24,2		14 . 44 . 46,38	46,36	– 0,02		105 . 57 . 8,38	10,20	+ 1,82
6 . 23 . 43 . 27,5		14 . 48 . 46,20	45,92	– 0,28		106 . 15 . 4,29	5,31	+ 1,02
7 . 23 . 43 . 31,3		14 . 52 . 46,58	46,35	– 0,23		106 . 32 . 42,42	44,22	+ 1,80
11 . 23 . 43 . 55,4		15 . 8 . 57,02	56,72	– 0,30		107 . 40 . 29,13	28,93	– 0,20
12 . 23 . 44 . 3,5		15 . 13 . 1,65	1,48	– 0,17		107 . 56 . 40,60	40,34	– 0,26
13 . 23 . 44 . 12,7		15 . 17 . 7,46	7,11	– 0,35		108 . 12 . 32,79	33,04	+ 0,25
25 . 23 . 47 . 5,4		16 . 7 . 19,31	19,17	– 0,14		110 . 56 . 18,93	17,41	– 1,52
28 . 23 . 48 . 5,7		16 . 20 . 9,43	9,30	– 0,13		111 . 28 . 45,99	45,63	– 0,36
29 . 23 . 48 . 27,3		16 . 24 . 27,67	27,38	– 0,29		111 . 38 . 47,76	46,34	– 1,42
30 . 23 . 48 . 49,6		16 . 28 . 46,56	46,14	– 0,42*		111 . 48 . 22,31	22,35	+ 0,04
Dec. 2 . 23 . 49 . 35,5		16 . 37 . 25,72	25,58	– 0,14		112 . 6 . 18,88	19,06	+ 0,18
3 . 23 . 49 . 59,5		16 . 41 . 46,37	46,21	– 0,16		112 . 14 . 38,72	39,07	+ 0,35
4 . 23 . 50 . 24,4		16 . 46 . 7,90	7,42	– 0,48		112 . 22 . 35,54	33,37	– 2,17
5 . 23 . 50 . 49,5	II.	16 . 50 . 29,57	29,21	– 0,36		112 . 30 . 1,82	1,58	– 0,24
7 . 23 . 51 . 41,1	I.	16 . 59 . 14,47	14,39	– 0,08				
9 . 23 . 52 . 35,0		17 . 8 . 1,65	1,53	– 0,12		112 . 55 . 28,64	28,91	+ 0,27
14 . 23 . 54 . 56,9		17 . 30 . 6,72	6,43	– 0,29		113 . 17 . 5,85	5,25	– 0,60
17 . 23 . 56 . 25,3		17 . 43 . 25,03	24,82	– 0,21		113 . 24 . 27,43	28,77	+ 1,34
27 . 0 . 0 . 54,7		18 . 23 . 24,22	23,90	– 0,32		113 . 21 . 11,24	12,54	+ 1,30
28 . 0 . 1 . 24,1		18 . 27 . 50,22	50,07	– 0,15		113 . 18 . 29,15	29,45	+ 0,30
31 . 0 . 2 . 51,2		18 . 41 . 7,27	7,26	– 0,01		113 . 7 . 29,69	32,67	+ 2,98

* By one star.

Greenwich Mean Solar Time of Transit of Center.	Limb Observed.	R.A. of Center from Observation.	Seconds of Tabular R.A.	Errors of Tables.	Limb Observed.	N.P.D. of Center from Observation.	Seconds of Tabular N.P.D.	Errors of Tables.	Effect of increasing Parallax $\frac{1}{1000}$	Effect of assuming the Earth Spherical.
d. h. m. s.		h. m. s.	s.	s.		° ′ ″	″	″	″	″
Jan. 2. 5.31.49,8					S.	89. 8.30,50	25,06	− 5,44	+ 2,79	12,89
3. 6.18.33,3	I.	1.10.37,69	37,84	+ 0,15	S.	82.25.61,72	56,10	− 5,62	2,49	13,21
4. 7. 5.45,7	I.	2. 1.54,37	54,52	+ 0,15	S.	76.13.22,11	16,93	− 5,18	2,18	13,31
5. 7.54.34,8	I.	2.54.48,07	48,13	+ 0,06	S.	70.47.64,41	59,37	− 5,04	1,90	13,27
6. 8.45.40,7					S.	66.26.58,32	52,99	− 5,33	1,65	13,12
11.13.11.13,0	II.	8.35.57,69	57,97	+ 0,28	N.	66.27.21,03	17,47	− 3,56	1,56	12,61
20.19.37.10,2	II.	15.38.27,33	27,49	+ 0,16						
Feb. 3. 7.35. 7,1	I.	4.29.37,31	37,81	+ 0,50	S.	63.58.48,48	46,40	− 2,08	1,51	12,99
4. 8.29.15,7	I.	5.27.51,42	51,77	+ 0,35	S&N.	62. 2.31,68	28,37	− 3,31	1,38	12,79
8.11.54.22,8	I.	9. 9.18,41	18,20	− 0,21	N.	68.57.11,43	10,70	− 0,73	1,68	12,57
9.12.38.32,9	II.	9.57.32,34	32,06	− 0,28	S&N.	73.27.54,47	53,20	− 1,27	1,90	12,51
10.13.20. 5,9	II.	10.43. 8,74	8,38	− 0,36	S.	78.36.18,74	17,57	− 1,17	2,14	12,37
11.13.59.50,3	II.	11.26.56,29	56,10	− 0,19	S.	84. 9.18,08	15,95	− 2,13	2,37	12,12
12.14.38.44,7	II.	12. 9.53,62	53,45	− 0,17						
Mar. 3. 6.23.58,6	I.	5. 8.40,66	40,49	− 0,17	S.	62.18.43,21	41,77	− 1,44	1,42	12,94
6. 9. 4. 1,6	I.	8. 0.59,66	60,07	+ 0,41	N.	64.16.11,28	14,06	+ 2,78	1,45	12,57
7. 9.52. 6,1	I.	8.53. 8,66	8,77	+ 0,11	N.	67.35.23,44	25,69	+ 2,25	1,61	12,56
8.10.36.59,2	I.	9.42. 5,65	5,48	− 0,17	N.	71.51.29,23	32,27	+ 3,04	1,81	12,53
9.11.19. 8,7	I.	10.28.18,64	18,27	− 0,37	N.	76.50.10,72	12,41	+ 1,69	2,04	12,43
10.11.59.20,1	I.	11.12.33,05	32,88	− 0,17	N.	82.18.14,73	16,15	+ 1,42	2,27	12,24
	II.	11.12.33,35	32,88	− 0,47						
11.12.38.28,1	II.	11.55.44,17	43,96	− 0,21	S.	88. 3.43,33	44,20	+ 0,87	2,52	11,90
12.13.17.32,1	II.	12.38.51,20	50,97	− 0,23	S.	93.55.14,91	15,07	+ 0,16	2,72	11,47
13.13.57.34,4	II.	13.22.56,56	56,42	− 0,14	S.	99.41.17,42	18,84	+ 1,42	2,90	10,94
20.20. 5.50,9	II.	19.59.49,54	48,70	− 0,84						
28. 2.21.52,9	I.	2.44.29,03	29,47	+ 0,44						
30. 4.13. 7,4	I.	4.44. 4,81	5,09	+ 0,28	S.	63. 3.39,42	39,96	+ 0,54	1,49	13,23
April 1. 6. 5.57,1	I.	6.44.56,29	56,77	+ 0,48	N.	61.38.21,55	19,25	− 2,30	1,34	12,76
7.10.37.41,2	I.	11.41. 4,35	4,24	− 0,11	N.	86. 3.33,25	35,67	+ 2,42	2,43	12,07
8.11.16.46,3	I.	12.24.12,42	12,24	− 0,18	N.	91.55.47,78	46,63	− 1,15	2,64	11,67
9.11.56.37,2	I.	13. 8. 6,35	6,06	− 0,29	N&S.	97.47.29,18	26,40	− 2,78	2,85	11,18
	II.	13. 8. 6,64	6,06	− 0,58						
11.13.22.47,4	II.	14.42.23,88	23,47	− 0,41	S.	108.36.40,14	40,41	+ 0,27	3,15	9,96
May 1. 6.29.48,3	I.	9. 7. 8,12	8,64	+ 0,52	N.	68.42.27,04	30,39	+ 3,35	1,68	12,67
3. 7.55.43,4	I.	10.41.10,37	10,86	+ 0,49	N.	78.23.33,72	41,74	+ 8,02	2,12	12,43
4. 8.35.27,7	I.	11.24.57,83	58,22	+ 0,39	N.	83.57.36,88	44,03	+ 7,15	2,35	12,20
5. 9.14.31,1	I.	12. 8. 4,17	4,11	− 0,06	N.	89.46.10,24	14,62	+ 4,38	2,57	11,87
7.10.35. 5,6	I.	13.36.44,95	44,85	− 0,10	N.	101.24.21,01	20,54	− 0,47	2,96	10,89
8.11.18.52,6	I.	14.24.35,71	35,45	− 0,26	S&N.	106.48.34,80	31,51	− 3,29	3,11	10,27
9.12. 6.20,5	II.	15.16. 7,99	7,28	− 0,71	S.	111.34.17,97	12,29	− 5,68	3,23	9,62
10.12.58. 4,0	II.	16.11.56,59	56,01	− 0,58	S.	115.20.44,16	44,19	+ 0,03	3,31	9,11
11.13.53.53,7	II.	17.11.52,03	51,88	− 0,15	S.	117.46. 5,47	4,92	− 0,55	3,37	8,78
16.18.37.50,1	II.	22.16.17,82	18,45	+ 0,63	N.	104.25.21,34	10,86	− 10,48	3,27	11,33
17.19.27.33,9	II.	23.10. 6,40	6,60	+ 0,20						
26. 2.36.37,0	I.	6.51.52,40	52,53	+ 0,13						
27. 3.31.21,8	I.	7.50.42,72	42,92	+ 0,20						
29. 5. 8.22,8	I.	9.35.52,80	53,17	+ 0,37	N.	71.27.50,88	52,48	+ 1,60	1,82	12,68
30. 5.51.18,5	I.	10.22.52,14	52,47	+ 0,33	N.	76.25.50,74	53,42	+ 2,68	2,04	12,54
June 4. 9.12.40,8	I.	14. 4.30,25	30,36	+ 0,11	N.	104.44.16,48	20,64	+ 4,16	3,06	10,55
5. 9.58.43,2	I.	14.54.36,74	36,30	− 0,44	N.	109.46.36,97	39,50	+ 2,53	3,19	9,97
7.11.44.18,1	I.	16.48.21,81	21,62	− 0,19	S.	116.58.43,56	45,18	+ 1,62	3,38	8,95
	II.	16.48.22,39	21,62	− 0,77						
8.12.43.16,8	II.	17.51.27,11	26,81	− 0,30	S.	118.22. 9,23	13,29	+ 4,06	3,42	8,80
July 3. 8.38. 5,3					N.	112.22.39,43	42,75	+ 3,32	3,25	9,64
4. 9.31. 4,1	I.	16.21.13,30	13,13	− 0,17	N.	115.54.22,69	31,71	+ 9,02	+ 3,35	9,19

Greenwich Mean Solar Time of Transit of Center.		Limb Observed.	R.A. of Center from Observation.	Seconds of Tabular R.A.	Errors of Tables.	Limb Observed.	N.P.D. of Center from Observation.	Seconds of Tabular N.P.D.	Errors of Tables.	Effect of increasing Parallax $\frac{1}{1000}$	Effect of assuming the Earth Spherical.
	d. h. m. s.		h. m. s.	s.	s.		° ′ ″	″	″	″	″
July	5. 10.28.48,2	I.	17.23. 3,47	3,57	+0,10	S&N.	118. 0.35,98	43,79	+7,81	+3,42	8,92
	6. 11.29.52,1	I.	18.28.13,99	14,32	+0,33	S.	118.19. 9,49	13,40	+3,91	3,47	8,92
	14. 18.35.49,2	II.	2. 6.53,51	53,56	+0,05						
	15. 19.27. 9,0	II.	3. 2.18,31	18,18	−0,13	N.	69.16.52,16	41,91	−10,25	1,82	13,48
	29. 5.43. 4,0	I.	14.11. 9,74	9,29	−0,45	N.	105.56.29,49	28,47	−1,02	3,06	10,31
Aug.	2. 9.12. 7,1	I.	17.56.33,41	33,91	+0,50	S.	118.31.42,94	49,41	+6,47	3,44	8,82
	4. 11.15.14,3	I.	20. 7.53,95	54,57	+0,62	S.	115. 0.45,15	49,79	+4,64	3,51	9,70
	5. 12.14.22,7	I.	21.11. 8,57	9,38	+0,81	S.	110.26.17,25	17,79	+0,54	3,47	10,57
		II.	21.11. 8,63	9,38	+0,75						
	6. 13.10. 5,2	II.	22.10.56,93	57,97	+1,04	N.	104.26.53,18	53,36	+0,18	3,35	11,60
	13. 19.12.57,6	II.	4.42.24,77	25,14	+0,37	N.	62.55.32,85	26,86	−5,99	1,45	13,15
	14. 20. 9.50,2	II.	5.43.23,22	23,59	+0,37						
	26. 4.22.40,2	I.	14.40.56,25	56,36	+0,11	N.	109. 8.37,20	32,39	−4,81	3,11	9,86
	27. 5. 9.41,6	I.	15.32. 1,94	2,10	+0,16	N.	113.21.59,22	57,30	−1,92	3,22	9,33
	29. 6.56.52,5	I.	17.27.23,57	23,98	+0,41	N.	118.23.11,09	13,12	+2,03	3,37	8,76
	30. 7.56. 0,7	I.	18.30.38,01	38,32	+0,31	S.	118.30.55,34	54,04	−1,30	3,44	8,80
	31. 8.56.31,4	I.	19.35.15,29	15,60	+0,31	S.	116.44.16,56	16,55	−0,01	3,48	9,26
Sept.	3. 11.48. 0,5	I.	22.39. 2,34	2,85	+0,51	S.	101. 7.28,37	26,12	−2,25	3,30	12,07
		II.	22.39. 2,08	2,85	+0,77						
	4. 12.40.17,0	II.	23.35.23,91	24,54	+0,63	N.	93.47.36,69	33,81	−2,88	3,06	13,02
	10. 18. 4.25,6	II.	5.24. 5,01	5,76	+0,75	N.	61.37.45,01	41,79	−3,22	1,38	13,10
	11. 19. 1.37,7	II.	6.25.23,08	23,86	+0,78						
	26. 5.44.10,9	I.	18. 4.53,60	54,22	+0,62	S.	118.44.61,35	55,59	−5,76	3,37	8,57
	28. 7.40.31,7	I.	20. 9.26,55	26,58	+0,03	S.	115. 3.19,02	15,35	−3,67	3,44	9,50
	30. 9.31.38,2	I.	22. 8.44,49	44,48	−0,01	S.	104.43.17,70	15,34	−2,36	3,35	11,44
Oct.	2. 11.15.41,6	I.	0. 0.58,05	58,16	+0,11	S.	90.18.25,96	22,18	−3,78	2,95	13,31
	3. 12. 7.24,4	II.	0.56.45,99	46,09	+0,10	S&N.	82.45.39,73	34,75	−4,98	2,62	13,87
	4. 13. 0.32,3	II.	1.53.59,08	59,56	+0,48	N.	75.41.55,41	48,08	−7,33	2,25	14,08
	11. 19.33.10,1	II.	8.55.17,27	17,90	+0,63	S.	68. 9.29,39	32,54	+3,15	1,69	12,76
	12. 20.18.26,4	II.	9.44.37,55	37,72	+0,17	S.	72.41.32,04	30,46	−1,58	1,89	12,60
	24. 4.35. 1,6	I.	18.45.56,40	56,54	+0,14	S.	118.15.38,25	32,40	−5,85	3,36	8,66
	26. 6.27. 3,5	I.	20.46. 9,85	10,17	+0,32	S.	112.29.37,73	36,01	−1,72	3,38	9,87
	29. 9. 1.35,5	I.	23.32.56,84	56,86	+0,02	S.	94. 4.55,40	51,40	−4,00	3,04	12,75
	30. 9.51.45,4	I.	0.27.11,59	11,48	−0,11	S.	86.41.41,86	37,60	−4,26	2,78	13,48
	31. 10.43.20,7	I.	1.22.51,85	51,65	−0,20	S.	79.25. 9,88	5,51	−4,37	2,46	13,93
Nov.	1. 11.37.33,2	I.	2.21. 9,80	9,98	+0,18	N.	72.46.34,18	29,29	−4,89	2,09	14,08
		II.	2.21. 9,97	9,98	+0,01						
	2. 12.35. 3,3	II.	3.22.45,97	46,37	+0,40	N.	67.17.60,95	55,27	−5,68	1,78	13,96
	9. 18.58. 1,3	II.	10.14.22,79	22,97	+0,18	S.	76. 3.54,81	57,07	+2,26	2,05	12,58
	11. 20.17.50,0	II.	11.42.17,75	17,33	−0,42						
	12. 20.56.25,7	II.	12.24.56,37	56,28	−0,09						
	22. 4.22.39,0	I.	20.27.51,89	51,81	−0,08						
	24. 6. 5.48,4	I.	22.19.11,37	11,31	−0,06	S.	103.14.23,70	24,93	+1,23	3,22	11,32
	26. 7.42.25,8	I.	0. 3.57,75	57,87	+0,12						
	29. 10.17. 9,5	I.	2.50.56,56	56,96	+0,40	S.	69.53.32,38	26,57	−5,81	1,94	13,92
	30. 11.15.37,7	I.	3.53.30,87	30,97	+0,10	S&N.	65.15.43,88	37,68	−6,20	1,66	13,80
Dec.	2. 13.19.15,5	II.	6. 5.22,18	22,78	+0,60	N.	61.30.15,21	11,74	−3,47	1,40	13,39
	9. 18.53.20,0	II.	12. 7.57,49	57,18	−0,31						
	25. 7.15.35,3	I.	1.31.23,04	23,34	+0,30	S.	78. 1.54,38	53,89	−0,49	2,33	13,62
	27. 9. 2.10,4	I.	3.26. 8,73	9,17	+0,44	S.	66.56.16,69	12,17	−4,52	1,75	13,70
	28. 10. 0.55,1	I.	4.28.59,63	60,12	+0,49	N&S.	63.23.48,32	43,70	−4,62	+1,54	13,55

Greenwich Mean Solar Time of Transit of Center.	Limb Observed.	R.A. of Center from Observation.	Seconds of Tabular R.A.	Errors of Tables.	N.P.D. of Center from Observation.	Seconds of Tabular N.P.D.	Errors of Tables.
d. h. m. s.		h. m. s.	s.	s.	° ′ ″	″	″
Jan. 5. 1.26.25,8	I.	20.25.35,34	34,90	−0,44			
Feb. 11.22.27.59,1					110.17.35,61	37,02	+1,41
12.22.28.24,0					110.15.38,92	41,84	+2,92
19.22.35.24,0	II.	20.35.27,03	27,07	+0,04	109.27.33,86	38,09	+4,23
Mar. 6.23. 3.52,4	II.	22. 3. 8,47	8,17	−0,30	104.12. 1,64	4,90	+3,26
19.23.36.35,1					95.45.15,38	17,67	+2,29
April 3. 0.21.12,3	I.	1. 7. 8,04	7,92	−0,12	83.17.37,73	34,73	−3,00
11. 0.49. 8,0					76. 1.38,54	35,41	−3,13
June 11.22.24. 5,0	II.	3.45.40,37	39,96	−0,41	73.45.29,15	34,00	+4,85
18.22.28.25,0	II.	4.17.36,94	37,02	+0,08	71.13.52,82	53,89	+1,07
20.22.31.58,1	II.	4.29. 3,77	3,52	−0,25			
22.22.36.33,1					69.37.25,39	25,09	−0,30
29.23. 0.45,9					67. 7.41,88	39,78	−2,10
July 1.23. 9.51,2					66.36.49,70	47,42	−2,28
4.23.24.53,4	II.	6.17.19,65	19,96	+0,31	66. 6.22,39	20,61	−1,78
6.23.35.35,5	II.	6.35.56,60	56,76	+0,16	65.58.29,85	29,62	−0,23
8.23.46.38,8	II.	6.54.49,84	50,10	+0,26	66. 1.36,19	34,33	−1,86
9.23.52. 5,0					66. 7.19,66	18,88	−0,78
19. 0.38. 5,9	I.	8.25.55,94	56,23	+0,29	68.54.18,62	19,94	+1,32
20. 0.42.29,9	I.	8.34.17,32	17,82	+0,50	69.23.28,66	30,01	+1,35
Aug. 3. 1.26.15,5	I.	10.13.21,83	22,12	+0,29	78. 2.47,13	51,83	+4,70
11. 1.38. 8,3	I.	10.56.49,01	49,09	+0,08	83.29. 1,33	5,94	+4,61
21. 1.41.21,2	I.	11.39.28,06	28,06	0,00	89.44.31,75	37,34	+5,59
23. 1.40.18,6	I.	11.46.18,37	18,38	+0,01	90.50.29,98	36,38	+6,40
Sept. 27.22.55.35,0					86. 6.26,81	20,07	−6,74
Oct. 2.22.45.17,9	II.	11.32.27,61	27,45	−0,16	85.46. 5,12	1,56	−3,56
11.22.52.41,2	II.	12.15.21,19	21,09	−0,10			
17.23. 5. 3,8					93.32.18,54	17,10	−1,44
19.23. 9.31,3	II.	13. 3.46,45	46,38	−0,07	94.58. 3,90	5,60	+1,70
23.23.18.32,9	II.	13.28.35,72	35,53	−0,19	97.50. 1,94	4,10	+2,16
28.23.29.50,4	II.	13.59.37,86	37,91	+0,05	101.18.20,51	21,24	+0,73
29.23.32. 6,0					101.58.28,22	29,95	+1,73
Nov. 13. 0. 4.37,5					110. 2.26,90	29,33	+2,43
14. 0. 7. 4,9	II.	15.40. 3,37	2,67	−0,70	110.30.26,92	25,95	−0,97

Greenwich Mean Solar Time of Transit of Limb.	Limb Observed.	R.A. of Center from Observation.	Seconds of Tabular R.A.	Errors of Tables.	N.P.D. of Center from Observation.	Seconds of Tabular N.P.D.	Errors of Tables.
d. h. m. s.		*h. m. s.*	*s.*	*s.*	° ′ ″	″	″
Jan. 3. 3.16.32,3					102.12.47,78	37,42	-10,36
5. 3.15.22,0	I.	22.14.49,41	48,97	-0,44	101.21.26,68	16,92	- 9,76
19. 3. 0.15,0	I.	22.54.51,75	51,37	-0,38	95.21.47,73	37,71	-10,02
20. 2.58.38,8	I.	22.57.11,86	11,41	-0,45	94.56.54,20	44,51	-9,69
29. 2.40.16,7	I.	23.14.15,79	15,18	-0,61	91.25.48,96	39,86	-9,10
Feb. 6. 2.16.43,0	I.	23.22.10,59	10,23	-0,36	88.50.19,08	9,87	-9,21
12. 1.53.30,4	I.	23.22.33,67	33,55	-0,02	87.25.52,79	43,08	-9,71
14. 1.44.37,2	I.	23.21.32,04	31,76	-0,28	87. 5.43,04	34,55	-8,49
16. 1.35. 8,5	I.	23.19.54,84	54,78	-0,06	86.50. 8,78	1,41	-7,37
20. 1.14.29,6	I.	23.14.58,75	58,93	+0,18	86.33.57,00	52,22	-4,78
Mar. 6.23.44.17,2	II.	22.43.39,92	39,94	+0,02	88.36. 7,76	7,44	-0,32
7.23.38.11,9	II.	22.41.30,19	30,31	+0,12	88.52.19,01	19,73	+0,72
15.22.53. 5,7	II.	22.27.48,96	49,12	+0,16	91.11. 1,40	9,02	+7,62
16.22.48. 2,7	II.	22.26.41,69	41,93	+0,24	91.27.58,43	65,23	+6,80
19.22.33.42,2	II.	22.24.15,51	15,75	+0,24	92.16. 8,24	14,75	+6,51
20.22.29.23,4	II.	22.23.45,59	45,83	+0,24	92.31. 5,82	12,56	+6,74
26.22. 6. 3,9	II.	22.24. 1,56	1,63	+0,07	93.46.13,64	22,33	+8,69
28.21.59.28,2	II.	22.25.17,82	18,00	+0,18	94. 5. 5,38	13,26	+7,88
April 1.21.47.53,3	II.	22.29.27,25	27,40	+0,15	94.32.52,89	60,21	+7,32
2.21.45.18,5	II.	22.30.48,64	48,47	-0,17	94.37.44,28	52,03	+7,75
4.21.40.28,9	II.	22.33.51,31	51,36	+0,05	94.44.58,76	66,95	+8,19
10.21.28.28,6	II.	22.45.28,33	28,42	+0,09	94.47.23,24	32,23	+8,99
11.21.26.47,8	II.	22.47.43,84	43,76	-0,08	94.45. 5,55	13,34	+7,79
May 3.21. 4.59,1	II.	23.52.35,80	35,64	-0,16	91.13.16,46	22,35	+5,89
4.21. 4.28,4	II.	23.56. 1,55	1,27	-0,28	90.57.47,31	52,05	+4,74
6.21. 3.31,8	II.	0. 2.57,90	57,70	-0,20	90.25.37,72	41,67	+3,95
7.21. 3. 6,0	II.	0. 6.28,61	28,39	-0,22	90. 8.59,65	63,18	+3,53
8.21. 2.42,1	II.	0.10. 1,14	0,66	-0,48	89.51.58,37	63,58	+5,21
9.21. 2.19,4	II.	0.13.34,92	34,46	-0,46	89.34.39,64	43,59	+3,95
10.21. 1.58,0	II.	0.17.10,07	9,76	-0,31	89.17. 0,53	4,19	+3,66
11.21. 1.38,2	II.	0.20.46,81	46,49	-0,32	88.59. 2,88	6,20	+3,32
14.21. 0.47,2	II.	0.31.45,35	45,00	-0,35	88. 3.25,92	28,81	+2,89
15.21. 0.32,7	II.	0.35.27,34	27,15	-0,19	87.44.19,57	24,71	+5,14
16.21. 0.19,6	II.	0.39.10,70	10,56	-0,14	87.25. 4,05	6,22	+2,17
June 17.21. 3.20,1	II.	2.48.21,55	21,71	+0,16	76.21.56,36	54,72	-1,64
22.21. 5.37,0	II.	3.10.21,65	21,69	+0,04	74.45.23,96	21,31	-2,65
24.21. 6.40,4	II.	3.19.18,31	18,43	+0,12			
29.21. 9.41,2	II.	3.42. 2,41	2,19	-0,22	72.41.16,27	12,27	-4,00
July 4.21.13.12,9	II.	4. 5.17,53	17,44	-0,09	71.22.29,22	26,14	-3,08
6.21.14.46,7	II.	4.14.44,69	44,30	-0,39	70.53.40,91	36,83	-4,08
9.21.17.15,8	II.	4.29. 3,88	3,75	-0,13	70.13.35,48	32,01	-3,47
11.21.19. 1,2					69.49. 7,30	2,59	-4,71
15.21.22.45,7					69. 5.53,23	47,66	-5,57
19.21.26.47,0	II.	5.18. 2,17	2,04	-0,13	68.30.46,03	42,03	-4,00
22.21.29.57,2	II.	5.33. 2,60	2,56	-0,04	68.10. 8,34	3,80	-4,54
23.21.31. 2,0	II.	5.38. 4,18	4,33	+0,15	68. 4.23,46	18,59	-4,87
25.21.33.14,4	II.	5.48.10,05	10,02	-0,03	67.54.34,84	31,77	-3,07
26.21.34.21,5					67.50.34,80	30,76	-4,04
27.21.35.29,4	II.	5.58.18,52	18,29	-0,23	67.47. 8,42	5,25	-3,17
31.21.40. 5,2	II.	6.18.41,29	41,21	-0,08	67.39.26,12	23,31	-2,81
Aug. 2.21.42.25,4	II.	6.28.55,03	55,14	+0,11	67.39.15,02	11,69	-3,33
10.21.51.55,3	II.	7. 9.58,84	58,67	-0,17	68. 8.16,31	14,11	-2,20
13.21.55.28,5	II.	7.25.22,34	22,36	+0,02	68.22.36,86	32,38	-4,48
16.21.58.59,9	II.	7.40.44,00	43,95	-0,05	68.47.28,32	24,25	-4,07
17.22. 0. 9,6	II.	7.45.50,43	50,46	+0,03	68.56.57,45	54,94	-2,51
22.22. 5.51,3	II.	8.11.15,89	16,03	+0,14	69.53.27,98	25,39	-2,59

Greenwich Mean Solar Time of Transit of Center.	Limb Observed.	R.A. of Center from Observation.	Seconds of Tabular R.A.	Errors of Tables.	N.P.D. of Center from Observation.	Seconds of Tabular N.P.D.	Errors of Tables.
d. h. m. s.		*h. m. s.*	*s.*	*s.*	° ′ ″	″	″
Aug. 23 . 22 . 6 . 58,0	II.	8 . 16 . 19,24	19,48	+ 0,24	70 . 6 . 32,69	29,08	– 3,61
24 . 22 . 8 . 4,0	II.	8 . 21 . 22,06	22,31	+ 0,25	70 . 20 . 9,25	6,67	– 2,58
27 . 22 . 11 . 18,2	II.	8 . 36 . 26,41	26,74	+ 0,33	71 . 4 . 23,77	21,14	– 2,63
29 . 22 . 13 . 24,4	II.	8 . 46 . 26,11	26,12	+ 0,01	71 . 36 . 37,94	34,33	– 3,61
31 . 22 . 15 . 27,1	II.	8 . 56 . 22,22	22,45	+ 0,23	72 . 10 . 54,96	53,61	– 1,35
Sept. 2 . 22 . 17 . 27,0	II.	9 . 6 . 15,60	15,64	+ 0,04	72 . 47 . 16,21	14,99	– 1,22
3 . 22 . 18 . 25,7	II.	9 . 11 . 10,98	11,04	+ 0,06	73 . 6 . 11,68	10,29	– 1,39
6 . 22 . 21 . 16,6	II.	9 . 25 . 51,99	52,35	+ 0,36*	74 . 5 . 48,69	47,96	– 0,73
10 . 22 . 24 . 54,4	II.	9 . 45 . 16,65	16,10	– 0,55†	75 . 31 . 39,20	37,54	– 1,66
11 . 22 . 25 . 46,3	II.	9 . 50 . 5,23	5,04	– 0,19	75 . 54 . 9,78	8,53	– 1,25
19 . 22 . 32 . 16,5	II.	10 . 28 . 8,91	8,69	– 0,22	79 . 7 . 51,73	51,08	– 0,65
20 . 22 . 33 . 2,3	II.	10 . 32 . 51,36	50,87	– 0,49	79 . 33 . 37,50	35,48	– 2,02
21 . 22 . 33 . 47,0	II.	10 . 37 . 32,72	32,38	– 0,34	79 . 59 . 39,24	37,87	– 1,37
27 . 22 . 38 . 3,4	II.	11 . 5 . 29,19	28,80	– 0,39	82 . 41 . 32,82	31,75	– 1,07
Oct. 2 . 22 . 41 . 23,6	II.	11 . 28 . 32,71	32,35	– 0,36	85 . 2 . 32,90	33,43	+ 0,53
17 . 22 . 50 . 57,3	II.	12 . 37 . 16,29	15,67	– 0,62	92 . 23 . 42,71	41,62	– 1,09
18 . 22 . 51 . 36,4	II.	12 . 41 . 51,99	51,19	– 0,80	92 . 53 . 23,04	22,82	– 0,22
19 . 22 . 52 . 15,5	II.	12 . 46 . 27,76	27,01	– 0,75	93 . 23 . 2,47	1,72	– 0,75
23 . 22 . 54 . 55,9	II.	13 . 4 . 54,91	54,03	– 0,88	95 . 20 . 59,13	59,92	+ 0,79
28 . 22 . 58 . 27,5	II.	13 . 28 . 9,87	8,96	– 0,91	97 . 46 . 5,24	5,73	+ 0,49
29 . 22 . 59 . 11,7	II.	13 . 32 . 50,70	49,82	– 0,88	98 . 14 . 39,12	40,24	+ 1,12
Nov. 5 . 23 . 5 . 43,2	II.	14 . 6 . 58,97	58,01	– 0,96	101 . 28 . 58,03	58,37	+ 0,34
7 . 23 . 6 . 25,9	II.	14 . 15 . 35,07	34,21	– 0,86	102 . 22 . 14,73	15,97	+ 1,19
9 . 23 . 8 . 12,7	II.	14 . 25 . 15,27	14,48	– 0,79	103 . 14 . 22,67	22,58	– 0,09
11 . 23 . 10 . 4,3	II.	14 . 34 . 59,94	59,03	– 0,91	104 . 5 . 12,27	11,49	– 0,78
12 . 23 . 11 . 1,0	II.	14 . 39 . 53,77	52,96	– 0,81	104 . 30 . 4,78	4,69	– 0,09
13 . 23 . 11 . 59,5	II.	14 . 44 . 48,96	48,04	– 0,92	104 . 54 . 35,36	36,00	+ 0,64
Dec. 3 . 23 . 35 . 35,3	II.	16 . 27 . 19,77	19,31	– 0,46	111 . 27 . 58,66	59,77	+ 1,11
28 . 0 . 11 . 52,0	I.	18 . 38 . 19,79	19,19	– 0,60			

* By an imperfect observation of one star.

† See the Transit.

Greenwich Mean Solar Time of Transit of Center.	Limb Observed.	R.A. of Center from Observation.	Seconds of Tabular R.A.	Errors of Tables.	N.P.D. of Center from Observation.	Seconds of Tabular N.P.D.	Errors of Tables.
d. h. m. s.		h. m. s.	s.	s.	° ′ ″	″	″
June 22 . 22 . 8 . 0,0					68 . 50 . 12,01	9,72	- 2,29
July 6 . 21 . 54 . 25,0	II.	4 . 54 . 29,52	28,98	- 0,54	67 . 14 . 52,28	49,67	- 2,61
9 . 21 . 51 . 30,4	II.	5 . 3 . 24,10	23,58	- 0,52	66 . 59 . 46,56	43,53	- 3,03
15 . 21 . 45 . 40,7	II.	5 . 21 . 12,76	11,49	- 1,27*	66 . 35 . 17,19	12,98	- 4,21
23 . 21 . 37 . 46,6	II.	5 . 44 . 49,90	49,45	- 0,45	66 . 14 . 22,99	18,38	- 4,61
25 . 21 . 35 . 47,1					66 . 11 . 14,33	9,85	- 4,48
26 . 21 . 34 . 46,5	II.	5 . 53 . 38,95	38,34	- 0,61	66 . 9 . 57,42	54,06	- 3,36
27 . 21 . 33 . 45,9	II.	5 . 56 . 34,72	34,21	- 0,51	66 . 8 . 54,02	50,66	- 3,36
Aug. 2 . 21 . 27 . 37,2					66 . 6 . 49,98	45,53	- 4,45
10 . 21 . 19 . 11,2	II.	6 . 37 . 9,40	8,75	- 0,65	66 . 15 . 3,28	1,74	- 1,54
16 . 21 . 12 . 36,6					66 . 29 . 16,48	11,82	- 4,66
22 . 21 . 5 . 48,3					66 . 49 . 54,37	49,78	- 4,59
26 . 21 . 1 . 7,3					67 . 6 . 64,04	59,56	- 4,48
29 . 20 . 57 . 31,8	II.	7 . 30 . 21,00	20,80	- 0,20	67 . 21 . 39,20	34,22	- 4,98
Sept. 2 . 20 . 52 . 37,3	II.	7 . 41 . 11,90	11,79	- 0,11			
3 . 20 . 51 . 22,5	II.	7 . 43 . 53,46	53,28	- 0,18			
4 . 20 . 50 . 6,9					67 . 54 . 56,17	52,30	- 3,87
10 . 20 . 42 . 24,5	II.	8 . 2 . 29,85	29,47	- 0,38	68 . 33 . 27,55	22,29	- 5,26
20 . 20 . 28 . 49,7	II.	8 . 28 . 18,43	18,14	- 0,29	69 . 47 . 53,50	48,87	- 4,63
21 . 20 . 27 . 25,3	II.	8 . 30 . 50,27	49,86	- 0,41	69 . 55 . 59,43	53,47	- 5,96
27 . 20 . 18 . 45,1	II.	8 . 45 . 48,03	47,84	- 0,19	70 . 46 . 34,09	29,76	- 4,33
Oct. 11 . 19 . 57 . 9,0	II.	9 . 19 . 20,10	20,02	- 0,08	72 . 56 . 40,39	35,74	- 4,65
12 . 19 . 55 . 32,0	II.	9 . 21 . 39,38	39,24	- 0,14	73 . 6 . 30,61	24,84	- 5,77
17 . 19 . 47 . 17,2	II.	9 . 33 . 5,98	5,94	- 0,04			
19 . 19 . 43 . 55,1	II.	9 . 37 . 36,44	36,17	- 0,27	74 . 16 . 39,47	34,03	- 5,44
24 . 19 . 35 . 18,1	II.	9 . 48 . 40,84	40,51	- 0,33	75 . 7 . 56,93	52,83	- 4,10
26 . 19 . 31 . 46,7	II.	9 . 53 . 1,96	1,69	- 0,27	75 . 28 . 39,42	36,13	- 3,29
29 . 19 . 26 . 25,0	II.	9 . 59 . 29,02	28,56	- 0,46	75 . 59 . 53,60	50,23	- 3,37
Nov. 2 . 19 . 19 . 6,5	II.	10 . 7 . 55,59	55,23	- 0,36	76 . 41 . 43,76	41,03	- 2,73
5 . 19 . 13 . 30,8	II.	10 . 14 . 8,59	8,29	- 0,30	77 . 13 . 11,80	8,13	- 3,67
7 . 19 . 9 . 43,6	II.	10 . 18 . 13,93	13,63	- 0,30	77 . 34 . 9,65	5,63	- 4,02
9 . 19 . 5 . 53,6	II.	10 . 22 . 16,45	16,20	- 0,25	77 . 55 . 6,14	1,33	- 4,81
12 . 19 . 0 . 3,6	II.	10 . 28 . 15,16	14,73	- 0,43	78 . 26 . 22,83	18,43	- 4,40
13 . 18 . 58 . 5,4	II.	10 . 30 . 13,16	12,79	- 0,37	78 . 36 . 46,33	41,63	- 4,70
30 . 18 . 22 . 37,8	II.	11 . 1 . 41,16	40,68	- 0,48	81 . 27 . 19,03	13,24	- 5,79
Dec. 2 . 18 . 18 . 11,5	II.	11 . 5 . 7,26	7,01	- 0,25	81 . 46 . 17,18	12,15	- 5,03
7 . 18 . 6 . 50,5	II.	11 . 13 . 27,21	26,78	- 0,43	82 . 32 . 21,45	16,75	- 4,70

* Apparently an error of 1^{s} in the observation.

RIGHT ASCENSIONS AND NORTH POLAR DISTANCES OF VESTA. 1838.

Greenwich Mean Solar Time of Transit.	R.A. from Observation.	Seconds of Tabular R.A.	Errors of Tables.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Errors of Tables.
d. h. m. s.	h. m. s.	s.	s.	° ′ ″	″	″
Dec. 20 . 12 . 44 . 44,6	6 . 41 . 43,64	43,77	+ 0,13	68 . 28 . 22,10	42,66	+ 20,56
27 . 12 . 9 . 33,3	6 . 34 . 2,44	2,58	+ 0,14	68 . 2 . 25,42	45,46	+ 20,04
28 . 12 . 4 . 30,0	6 . 32 . 54,89	55,18	+ 0,29	67 . 58 . 41,64	63,76	+ 22,12

RIGHT ASCENSIONS AND NORTH POLAR DISTANCES OF JUNO. 1838.

Greenwich Mean Solar Time of Transit.	R.A. from Observation.	Seconds of Tabular R.A.	Errors of Tables.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Errors of Tables.
d. h. m. s.	h. m. s.	s.	s.	° ′ ″	″	″
June 4 . 13 . 5 . 1,9	17 . 57 . 29,50	26,81	– 2,69	94 . 45 . 32,47	14,13	– 18,34
15 . 12 . 12 . 38,0	17 . 48 . 19,16	16,44	– 2,72	94 . 30 . 67,18	45,41	– 21,77
21 . 11 . 43 . 49,8	17 . 43 . 5,57	2,49	– 3,08			
22 . 11 . 39 . 1,1	17 . 42 . 12,65	10,20	– 2,45	94 . 29 . 72,32	47,99	– 24,33
23 . 11 . 34 . 13,2	17 . 41 . 20,57	18,06	– 2,51			
July 4 . 10 . 41 . 49,2	17 . 32 . 10,05	7,42	– 2,63			
5 . 10 . 37 . 6,0	17 . 31 . 22,63	20,58	– 2,05			
16 . 9 . 46 . 11,6	17 . 23 . 42,08	39,50	– 2,58			

RIGHT ASCENSION AND NORTH POLAR DISTANCE OF PALLAS. 1838.

Greenwich Mean Solar Time of Transit.	R.A. from Observation.	Seconds of Tabular R.A.	Errors of Tables.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Errors of Tables.
d. h. m. s.	h. m. s.	s.	s.	° ′ ″	″	″
Jan. 3 . 6 . 57 . 45,8	1 . 49 . 56,66			112 . 45 . 12,02		

Right Ascensions and North Polar Distances of Ceres. 1838.

Greenwich Mean Solar Time of Transit.	R.A. from Observation.	Seconds of Tabular R.A.	Errors of Tables.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Errors of Tables.
d. h. m. s.	h. m. s.	s.	s.	° ′ ″	″	″
Jan. 3. 9.51.21,0	4.44. 0,39	1,20	+0,81	66.56.18,87	38,04	+19,17
5. 9.42. 7,3	4.42.38,20	38,90	+0,70	66.51.31,81	50,34	+18,53
18. 8.44.49,6	4.36.26,44					
20. 8.36.27,2	4.35.55,68			66.14.22,30		
22. 8.28.12,2*				66. 9. 8,06		
29. 8. 0.18,4	4.35.10,06			65.50.11,19		
Feb. 6. 7.30.13,2	4.36.32,32			65.27.13,98		
8. 7.22.59,2	4.37.10,25			65.21.17,01		
14. 7. 1.57,4	4.39.44,36			65. 3. 7,43		
22. 6.35.20,9	4.44.35,93			64.38.11,76		

* In the 'Transits' of Jan. 22, another star was probably mistaken for Ceres. The above Greenwich Mean Solar Time is interpolated from those of Jan. 18, 20, and 29.

Right Ascensions and North Polar Distances of Jupiter. 1838.

Greenwich Mean Solar Time of Transit of Center.	R.A. of Center from Observation.	Seconds of Tabular R.A.	Errors of Tables.	N.P.D. of Center from Observation.	Seconds of Tabular N.P.D.	Errors of Tables.
d. h. m. s.	h. m. s.	s.	s.	° ′ ″	″	″
Feb. 10.13.49.32,8	11.12.40,44	39,47	−0,97	83.22.52,07	48,04	−4,03
11.13.45.12,8	11.12.16,36	15,44	−0,92	83.20. 8,09	4,55	−3,54
12.13.40.52,5	11.11.51,84	50,97	−0,87			
16.13.23.27,4	11.10.10,14	9,25	−0,89	83. 5.59,54	55,95	−3,59
19.13.10.20,1	11. 8.50,37	49,36	−1,01	82.57. 9,09	5,95	−3,14
24.12.48.22,5	11. 6.31,86	30,84	−1,02	82.41.62,58	58,35	−4,23
Mar. 3.12.17.30,5	11. 3.10,72	9,97	−0,75	82.20.29,09	26,15	−2,94
6.12. 4.16,3	11. 1.43,96	43,02	−0,94	82.11.18,47	15,05	−3,42
7.11.59.51,5	11. 1.14,98	14,07	−0,91	82. 8.16,62	12,75	−3,87
8.11.55.26,7	11. 0.46,09	45,17	−0,92	82. 5.14,12	11,25	−2,87
9.11.51. 2,1	11. 0.17,29	16,34	−0,95	82. 2.12,96	10,75	−2,21
10.11.46.37,5	10.59.48,51	47,60	−0,91	81.59.13,56	11,35	−2,21
12.11.37.48,7	10.58.51,33	50,45	−0,88	81.53.19,35	16,15	−3,20
15.11.24.36,8	10.57.26,93	25,91	−1,02	81.44.37,26	34,75	−2,51
16.11.20.13,1	10.56.59,10	58,12	−0,98	81.41.48,55	44,45	−4,10
17.11.15.49,7	10.56.31,51	30,55	−0,96	81.38.59,37	56,05	−3,32
20.11. 2.41,0	10.55.10,35	9,41	−0,94	81.30.46,73	43,44	−3,29
21.10.58.18,7	10.54.43,92	42,94	−0,98	81.28. 6,22	3,74	−2,48
26.10.36.32,3	10.52.36,70	35,74	−0,96	81.15.26,64	24,14	−2,50
27.10.32.12,3	10.52.12,49	11,46	−1,03	81.13. 3,93	0,74	−3,19
28.10.27.52,6	10.51.48,62	47,61	−1,01	81.10.43,07	40,34	−2,73
30.10.19.14,5	10.51. 2,26	1,24	−1,02	81. 6.11,90	9,04	−2,86
April 7. 9.45. 2,4	10.48.16,96	15,65	−1,31	80.50.24,05	20,73	−3,32
9. 9.36.34,4	10.47.40,69	39,70	−0,99	80.47. 3,07	0,23	−2,84
10. 9.32.21,3	10.47.23,39	22,59	−0,80	80.45.28,69	25,63	−3,06
12. 9.23.57,4	10.46.51,26	50,14	−1,12	80.42.33,26	28,12	−5,14
16. 9. 7.16,1	10.45.53,43	52,60	−0,83	80.37.24,55	20,52	−4,03
17. 9. 3. 7,5	10.45.40,71	39,79	−0,92	80.36.17,57	13,72	−3,85
19. 8.54.52,0	10.45.16,93	16,11	−0,82	80.34.16,68	12,32	−4,36
21. 8.46.39,3	10.44.56,06	55,05	−1,01	80.32.31,09	27,51	−3,58

Greenwich Mean Solar Time of Transit of Center.	R.A. of Center from Observation.	Seconds of Tabular R.A.	Errors of Tables.	N.P.D. of Center from Observation.	Seconds of Tabular N.P.D.	Errors of Tables.
d. h. m. s.	*h. m. s.*	*s.*	*s.*	° ′ ″	″	″
April 24. 8.34.25,1	10.44.29,43	28,46	- 0,97	80.30.24,60	21,51	- 3,09
27. 8.22.17,0	10.44. 8,99	7,99	- 1,00	80.28.56,84	53,71	- 3,13
May 3. 7.58.19,0	10.43.46,42	45,54	- 0,88	80.27.54,68	52,30	- 2,38
5. 7.50.25,4	10.43.44,69	43,56	- 1,13	80.28. 8,98	5,50	- 3,48
7. 7.42.34,3	10.43.45,38	44,31	- 1,07	80.28.37,95	35,29	- 2,66
8. 7.38.39,7	10.43.46,63	45,71	- 0,92	80.28.61,80	56,39	- 5,41
10. 7.30.52,7	10.43.51,53	50,52	- 1,01	80.29.53,39	50,79	- 2,60
11. 7.27. 0,3	10.43.54,98	53,93	- 1,05	80.30.26,72	24,09	- 2,63
12. 7.23. 8,4	10.43.59,05	58,02	- 1,03	80.31. 4,85	1,39	- 3,46
15. 7.11.36,9	10.44.16,34	14,25	- 2,09*	80.33.22,16	17,39	- 4,77
16. 7. 7.47,6	10.44.22,03	20,98	- 1,05	80.34.14,07	10,68	- 3,39
17. 7. 3.59,0	10.44.29,29	28,37	- 0,92	80.35.10,86	7,98	- 2,88
18. 7. 0.11,2	10.44.37,41	36,41	- 1,00	80.36.13,00	9,08	- 3,92
22. 6.45. 5,9	10.45.15,91	15,05	- 0,86	80.40.54,95	52,78	- 2,17
29. 6.19. 6,2	10.46.47,86	47,01	- 0,85	80.51.37,70	35,67	- 2,03
June 5. 5.53.36,0	10.48.49,33	48,25	- 1,08	81. 5.18,10	15,77	- 2,33
6. 5.49.59,3	10.49. 8,59	7,85	- 0,74	81. 7.29,22	26,66	- 2,56
7. 5.46.23,8	10.49.29,07	27,99	- 1,08	81. 9.43,11	40,96	- 2,15
8. 5.42.48,4	10.49.49,59	48,68	- 0,91	81.11.61,57	58,46	- 3,11
9. 5.39.13,7	10.50.10,93	9,90	- 1,03	81.14.21,78	19,26	- 2,52
12. 5.28.32,4	10.51.17,56	16,74	- 0,82	81.21.43,56	40,76	- 2,80
21. 4.56.56,4	10.55. 5,35	4,43	- 0,92	81.46.35,82	32,55	- 3,27
22. 4.53.27,9	10.55.32,86	32,14	- 0,72	81.49.36,27	33,25	- 3,02
23. 4.50. 0,0	10.56. 0,92	0,32	- 0,60	81.52.39,92	36,85	- 3,07
29. 4.29.22,5	10.58.59,42	58,50	- 0,92			
July 2. 4.19. 9,1	11. 0.33,97	33,23	- 0,74	82.22.12,63	10,24	- 2,39
5. 4. 8.59,4	11. 2.12,26	11,51	- 0,75			
6. 4. 5.36,9	11. 2.45,77	45,03	- 0,74			
9. 3.55.31,7	11. 4.28,68	27,76	- 0,92	82.47.32,23	30,54	- 1,69
12. 3.45.29,6	11. 6.14,62	13,66	- 0,96			
18. 3.25.34,1	11. 9.55,14	54,40	- 0,70			
20. 3.18.58,3	11.11.11,41	10,55	- 0,86			
28. 2.52.46,0	11.16.27,25	26,39	- 0,86	84. 5. 8,77	8,73	- 0,04
Aug. 11. 2. 7.31,3	11.26.16,91	16,20	- 0,71	85. 9. 0,51	0,94	+ 0,43
Oct. 31.21.48.14,2				91.57.55,23	54,33	- 0,90
Nov. 5.21.32.13,5	12.33.13,89	13,05	- 0,84	92.20.45,00	44,33	- 0,67
7.21.25.47,1	12.34.39,76	38,98	- 0,78	92.29.42,71	41,18	- 1,53
9.21.19.20,1	12.36. 4,78	4,05	- 0,73	92.38.33,00	31,17	- 1,83
12.21. 9.37,9	12.38.10,67	9,90	- 0,77	92.51.33,80	32,63	- 1,17
Dec. 3.20. 0.30,2	12.51.39,33	38,63	- 0,70	94.13.41,63	40,74	- 0,89
7.19.47. 3,2	12.53.56,35	55,49	- 0,86	94.27.16,65	14,95	- 1,70
9.19.40.16,8	12.55. 1,95	1,51	- 0,44	94.33.46,15	45,05	- 1,10
13.19.26.40,1	12.57. 9,25	8,44	- 0,81	94.46. 9,67	9,75	+ 0,08
14.19.23.15,1	12.57.40,26	39,07	- 1,19	94.49. 6,68	8,25	+ 1,57
19.19. 6. 0,7	13. 0. 5,83	5,20	- 0,63			
26.18.41.32,6	13. 3. 9,58	8,91	- 0,67			

* No doubt an error of 1ˢ in the observation.

Greenwich Mean Solar Time of Transit of Center.	R.A. of Center from Observation.	Seconds of Tabular R.A.	Errors of Tables.	N.P.D. of Center from Observation.	Seconds of Tabular N.P.D.	Errors of Tables.
d. h. m. s.	*h. m. s.*	*s.*	*s.*	° ′ ″	″	″
Feb. 5 . 18 . 40 . 56,2	15 . 45 . 8,94	8,49	- 0,45	107 . 40 . 19,25	35,79	+ 16,54
13 . 18 . 10 . 55,6	15 . 46 . 35,90	35,60	- 0,30	107 . 43 . 35,17	51,79	+ 16,62
14 . 18 . 7 . 9,2	15 . 46 . 45,42	44,74	- 0,68	107 . 43 . 56,14	70,40	+ 14,26
15 . 18 . 3 . 21,9	15 . 46 . 54,05	53,49	- 0,56	107 . 44 . 12,85	27,50	+ 14,65
Apr. 24 . 13 . 30 . 32,9	15 . 41 . 25,88	25,32	- 0,56	107 . 16 . 11,42	28,42	+ 17,00
27 . 13 . 17 . 56,7	15 . 40 . 37,28	36,59	- 0,69	107 . 13 . 20,87	36,62	+ 15,75
May 1 . 13 . 1 . 5,9	15 . 39 . 29,99	29,26	- 0,73	107 . 9 . 26,93	42,12	+ 15,19
3 . 12 . 52 . 39,5	15 . 38 . 55,26	54,73	- 0,53	107 . 7 . 26,54	43,02	+ 16,48
4 . 12 . 48 . 26,2	15 . 38 . 37,86	37,28	- 0,58	107 . 6 . 26,44	43,02	+ 16,58
7 . 12 . 35 . 45,8	15 . 37 . 44,99	44,29	- 0,70	107 . 3 . 26,60	42,02	+ 15,42
8 . 12 . 31 . 31,8	15 . 37 . 26,87	26,44	- 0,43	107 . 2 . 24,23	41,42	+ 17,19
10 . 12 . 23 . 4,4	15 . 36 . 51,17	50,57	- 0,60	107 . 0 . 21,39	39,92	+ 18,53
11 . 12 . 18 . 50,5	15 . 36 . 33,17	32,55	- 0,62	106 . 59 . 22,07	39,12	+ 17,05
12 . 12 . 14 . 36,5				106 . 58 . 20,40	38,42	+ 18,02
14 . 12 . 6 . 8,6	15 . 35 . 38,87	38,24	- 0,63	106 . 56 . 20,10	36,82	+ 16,72
15 . 12 . 1 . 54,6	15 . 35 . 20,74	20,07	- 0,67	106 . 55 . 19,44	36,12	+ 16,68
16 . 11 . 57 . 40,6	15 . 35 . 2,56	1,88	- 0,68	106 . 54 . 18,59	35,72	+ 17,13
22 . 11 . 32 . 16,5	15 . 33 . 13,65	13,05	- 0,60	106 . 48 . 20,99	36,92	+ 15,93
26 . 11 . 15 . 21,6	15 . 32 . 2,15	1,44	- 0,71	106 . 44 . 26,87	44,32	+ 17,45
28 . 11 . 6 . 54,5	15 . 31 . 26,82	26,16	- 0,66	106 . 42 . 35,75	50,92	+ 15,17
29 . 11 . 2 . 41,1	15 . 31 . 9,32	8,67	- 0,65	106 . 41 . 39,79	55,02	+ 15,23
June 2 . 10 . 45 . 49,0	15 . 30 . 0,68	0,02	- 0,66	106 . 38 . 1,25	17,41	+ 16,16
4 . 10 . 37 . 24,1	15 . 29 . 27,47	26,56	- 0,91	106 . 36 . 16,23	32,71	+ 16,48
8 . 10 . 20 . 35,7	15 . 28 . 22,51	21,73	- 0,78	106 . 32 . 56,87	72,51	+ 15,64
9 . 10 . 16 . 24,1	15 . 28 . 6,83	6,00	- 0,83	106 . 32 . 8,51	24,61	+ 16,10
12 . 10 . 3 . 50,5	15 . 27 . 20,87	20,06	- 0,81	106 . 29 . 50,46	66,31	+ 15,85
15 . 9 . 51 . 18,7	15 . 26 . 36,72	36,12	- 0,60	106 . 27 . 41,26	56,51	+ 15,25
19 . 9 . 34 . 40,2	15 . 25 . 41,70	40,98	- 0,72	106 . 25 . 0,48	18,01	+ 17,53
21 . 9 . 26 . 22,5	15 . 25 . 15,75	15,04	- 0,71	106 . 23 . 51,75	65,61	+ 13,86
22 . 9 . 22 . 14,2	15 . 25 . 3,27	2,50	- 0,77	106 . 23 . 14,96	31,21	+ 16,25
23 . 9 . 18 . 5,9	15 . 24 . 50,92	50,24	- 0,68	106 . 22 . 41,55	58,01	+ 16,46
29 . 8 . 53 . 23,5	15 . 23 . 43,77	43,10	- 0,67			
July 4 . 8 . 32 . 57,2	15 . 22 . 56,86	56,09	- 0,77	106 . 18 . 1,81	17,51	+ 15,70
5 . 8 . 28 . 53,0	15 . 22 . 48,62	47,71	- 0,91			
6 . 8 . 24 . 49,1	15 . 22 . 40,57	39,67	- 0,90			
7 . 8 . 20 . 45,6	15 . 22 . 32,97	31,98	- 0,99	106 . 17 . 13,72	29,60	+ 15,88
9 . 8 . 12 . 39,2	15 . 22 . 18,36	17,68	- 0,68	106 . 16 . 50,15	64,60	+ 14,45
16 . 7 . 44 . 29,4	15 . 21 . 39,85	39,04	- 0,81	106 . 16 . 7,75	23,10	+ 15,35
18 . 7 . 36 . 30,0				106 . 16 . 8,51	24,50	+ 15,99
20 . 7 . 28 . 32,2	15 . 21 . 26,25	25,20	- 1,05			

Greenwich Mean Solar Time of Transit.	R.A. from Observation.	Seconds of Tabular R.A.	Errors of Tables.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Errors of Tables.
d. h. m. s.	h. m. s.	s.	s.	° ′ ″	″	″
Aug. 6 . 13 . 52 . 3,4	22 . 53 . 1,95	6,56	+ 4,61	97 . 59 . 60,28	44,09	– 16,19
8 . 13 . 43 . 56,2	22 . 52 . 46,49	51,28	+ 4,79	98 . 1 . 35,18	20,29	– 14,89
11 . 13 . 31 . 45,0	22 . 52 . 22,97	27,67	+ 4,70	98 . 3 . 65,09	48,39	– 16,70
13 . 13 . 23 . 37,1	22 . 52 . 6,84	11,53	+ 4,69	98 . 5 . 45,29	29,19	– 16,10
14 . 13 . 19 . 33,0	22 . 51 . 58,67	63,35	+ 4,68	98 . 6 . 36,91	20,29	– 16,62
15 . 13 . 15 . 29,0	22 . 51 . 50,54	55,09	+ 4,55	98 . 7 . 25,34	11,59	– 13,75
21 . 12 . 51 . 2,8	22 . 50 . 59,63	64,21	+ 4,58	98 . 12 . 44,09	26,99	– 17,10
24 . 12 . 38 . 49,0	22 . 50 . 33,47	38,08	+ 4,61	98 . 15 . 23,71	7,99	– 15,72
28 . 12 . 22 . 30,0	22 . 49 . 58,07	62,76	+ 4,69	98 . 18 . 62,02	44,69	– 17,33
29 . 12 . 18 . 25,3				98 . 19 . 55,08	39,09	– 15,99
30 . 12 . 14 . 20,5	22 . 49 . 40,31	44,97	+ 4,66	98 . 20 . 47,42	33,58	– 13,84
31 . 12 . 10 . 15,6	22 . 49 . 31,29	36,05	+ 4,76	98 . 21 . 43,25	28,08	– 15,17
Sept. 3 . 11 . 58 . 1,2				98 . 24 . 25,38	11,38	– 14,00
4 . 11 . 53 . 56,3	22 . 48 . 55,59	60,29	+ 4,70	98 . 25 . 22,06	5,78	– 16,28
8 . 11 . 37 . 37,0	22 . 48 . 19,80	24,58	+ 4,78	98 . 28 . 58,50	42,09	– 16,41
10 . 11 . 29 . 27,8	22 . 48 . 2,28	6,82	+ 4,54	98 . 30 . 44,68	29,39	– 15,29
11 . 11 . 25 . 22,9	22 . 47 . 53,35	57,97	+ 4,62	98 . 31 . 36,79	22,59	– 14,20
12 . 11 . 21 . 18,3	22 . 47 . 44,58	49,16	+ 4,58	98 . 32 . 31,32	15,59	– 15,73
13 . 11 . 17 . 13,5	22 . 47 . 35,68	40,37	+ 4,69	98 . 33 . 23,39	8,39	– 15,00
15 . 11 . 9 . 4,3	22 . 47 . 18,32	22,92	+ 4,60	98 . 34 . 68,44	53,19	– 15,25
20 . 10 . 48 . 42,1	22 . 46 . 35,49	40,09	+ 4,60	98 . 39 . 23,79	8,99	– 14,80
21 . 10 . 44 . 37,8	22 . 46 . 27,07	31,70	+ 4,63	98 . 39 . 75,00	58,89	– 16,11
27 . 10 . 20 . 13,8	22 . 45 . 38,35	42,93	+ 4,58	98 . 44 . 62,83	47,59	– 15,24
28 . 10 . 16 . 10,2	22 . 45 . 30,66	35,09	+ 4,43	98 . 45 . 44,80	33,79	– 11,01
Oct. 3 . 9 . 55 . 52,8	22 . 44 . 52,69	57,26	+ 4,57	98 . 49 . 30,59	15,29	– 15,30
4 . 9 . 51 . 49,7	22 . 44 . 45,48	50,01	+ 4,53	98 . 49 . 73,36	57,59	– 15,77
13 . 9 . 15 . 26,7	22 . 43 . 45,54	49,99	+ 4,45	98 . 55 . 59,90	44,69	– 15,21
17 . 8 . 59 . 19,9	22 . 43 . 22,24	26,69	+ 4,45			
20 . 8 . 47 . 16,3	22 . 43 . 6,30	10,74	+ 4,44	98 . 59 . 43,51	27,09	– 16,42
26 . 8 . 23 . 13,2	22 . 42 . 38,59	43,07	+ 4,48	99 . 2 . 14,32	0,39	– 13,93
31 . 8 . 3 . 15,1	22 . 42 . 20,05	24,55	+ 4,50	99 . 3 . 55,70	40,40	– 15,30
Nov. 1 . 7 . 59 . 16,1	22 . 42 . 16,94	21,36	+ 4,42	99 . 3 . 71,95	57,20	– 14,75
7 . 7 . 35 . 25,4	22 . 42 . 1,68	5,93	+ 4,25			
9 . 7 . 27 . 29,7	22 . 41 . 57,77	62,22	+ 4,45	99 . 5 . 46,72	32,60	– 14,12
10 . 7 . 23 . 32,1	22 . 41 . 56,09	60,65	+ 4,56	99 . 5 . 54,82	39,50	– 15,32
12 . 7 . 15 . 37,9	22 . 41 . 53,64	58,06	+ 4,42	99 . 5 . 63,91	50,10	– 13,81
13 . 7 . 11 . 40,9	22 . 41 . 52,57	57,04	+ 4,47	99 . 5 . 70,18	53,60	– 16,58
22 . 6 . 36 . 17,1	22 . 41 . 52,02	56,53	+ 4,51	99 . 5 . 50,46	33,70	– 16,76
24 . 6 . 28 . 27,3	22 . 41 . 54,07	58,52	+ 4,45	99 . 5 . 30,95	16,60	– 14,35
26 . 6 . 20 . 38,7	22 . 41 . 57,26	61,29	+ 4,03	99 . 4 . 70,53	54,80	– 15,73
30 . 6 . 5 . 2,8	22 . 42 . 4,96	9,12	+ 4,16	99 . 3 . 71,72	57,40	– 14,32
Dec. 3 . 5 . 53 . 22,8	22 . 42 . 12,81	17,00	+ 4,19	99 . 3 . 18,06	2,51	– 15,55
4 . 5 . 49 . 29,6	22 . 42 . 15,55	20,00	+ 4,45	99 . 2 . 56,80	41,91	– 14,89
7 . 5 . 37 . 52,3	22 . 42 . 25,97	30,12	+ 4,15	99 . 1 . 48,40	33,51	– 14,89
8 . 5 . 33 . 59,9	22 . 42 . 29,48	33,88	+ 4,40	99 . 1 . 23,66	8,51	– 15,15
15 . 5 . 6 . 59,9				98 . 57 . 58,23	42,21	– 16,02
18 . 4 . 55 . 28,3				98 . 55 . 72,52	57,81	– 14,71
27 . 4 . 21 . 3,0	22 . 44 . 15,23	19,32	+ 4,09			
28 . 4 . 17 . 14,1				98 . 49 . 17,39	3,01	– 14,38

DETERMINATION OF THE POSITION OF THE ECLIPTIC AND OF THE MEAN ERROR OF THE ASSUMED RIGHT ASCENSIONS OF THE FUNDAMENTAL STARS, FROM THE CIRCLE OBSERVATIONS OF THE SUN IN THE YEAR 1838.

The Observations, (exclusive of those of single limbs,) have been divided into groups, containing very nearly the same number of Observations; and the Table below exhibits the means of the days of Observation, and the mean values (a) of the Tabular Errors in North Polar Distance, of the several groups, derived from the columns in pages (26)—(28), together with the Sun's Longitude (λ) and North Polar Distance (Δ) at the mean noons of the respective mean days.

Limiting Days of Observation of each group.	Mean Day.	Mean of the Tabular Errors in N.P.D.	Number of Observations.	Sun's Longitude at mean noon.	Sun's N.P.D. at mean noon.
		″		° ′ ″	° ′ ″
Jan. 3......Feb. 6	Jan. 16	+0,86	11	295.59.29	110.58.13
Feb. 12......Mar. 20	Feb. 27	+1,34	11	338.29.48	98.23.32
Mar. 21......Apr. 11	Mar. 31	+2,22	10	10.20. 0	85.54.16
Apr. 12......May 11	May 2	+0,53	11	41.36. 7	74.40.16
May 12......June 15	May 29	+0,28	11	67.36.34	68.23.57
June 16......July 13	July 1	+0,28	11	99. 7.38	66.51. 6
July 16......Aug. 6	July 25	+0,63	11	122. 1.28	70.16.17
Aug. 8......Aug. 28	Aug. 18	+0,62	11	145. 2. 8	76.48.38
Aug. 30......Sept. 15	Sept. 6	+0,17	10	163.24.22	83.28.15
Sept. 21......Oct. 24	Oct. 9	+0,11	11	195.44.54	96.12.13
Oct. 29......Nov. 30	Nov. 13	+0,06	11	230.42.32	107.56.51
Dec. 1......Dec. 31	Dec. 13	+0,34	11	261. 6.22	113. 9.51

*Formulæ of calculation**.

$$a + m \cos\lambda \operatorname{cosec}\Delta + n \sin\lambda \operatorname{cosec}\Delta + p = 0 \ldots\ldots (1)$$

And I being the obliquity of the Ecliptic,

$$\delta\lambda = m \times \operatorname{cosec} I \ldots (2). \qquad \delta I = n \times \sec I \ldots (3). \qquad \delta\Delta = a + p \ldots (4).$$

The following equations were deduced from the formula (1) by means of the Table above, and each equation is multiplied by the respective number of observations.

$$\text{First Quarter} \left\{ \begin{array}{lrl} \text{Jan. } 16 \ldots\ldots & 9{,}\!\overset{\prime\prime}{46} + 5{,}1625\,m - 10{,}5888\,n + 11\,p = 0. \\ \text{Feb. } 27 \ldots\ldots & 14{,}74 + 10{,}3452\,m - 4{,}0757\,n + 11\,p = 0. \\ \text{Mar. } 31 \ldots\ldots & 22{,}20 + 9{,}8630\,m + 1{,}7983\,n + 10\,p = 0. \end{array} \right.$$

$$\text{Second Quarter} \left\{ \begin{array}{lrl} \text{May } 2 \ldots\ldots & 5{,}83 + 8{,}5290\,m + 7{,}5728\,n + 11\,p = 0. \\ \text{May } 29 \ldots\ldots & 3{,}08 + 4{,}5066\,m + 10{,}9389\,n + 11\,p = 0. \\ \text{July } 1 \ldots\ldots & 3{,}08 - 1{,}8977\,m + 11{,}8117\,n + 11\,p = 0. \end{array} \right.$$

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* For the investigation of the Formulæ and an account of the Principles on which the Calculations are made, see the Introduction.

$$\text{Third Quarter}\left\{\begin{array}{lrl} \text{July } 25\ldots\ldots & 6'',93 - & 6,1968\,m + 9,9076\,n + 11\,p = 0. \\ \text{Aug. } 18\ldots\ldots & 6,82 - & 9,2588\,m + 6,4745\,n + 11\,p = 0. \\ \text{Sept. } 6\ldots\ldots & 1,70 - & 9,6461\,m + 2,8745\,n + 10\,p = 0. \end{array}\right.$$

$$\text{Fourth Quarter}\left\{\begin{array}{lrl} \text{Oct. } 9\ldots\ldots & 1,21 - & 10,6494\,m - 3,0031\,n + 11\,p = 0. \\ \text{Nov. } 13\ldots\ldots & 0,66 - & 7,3221\,m - 8,9488\,n + 11\,p = 0. \\ \text{Dec. } 13\ldots\ldots & 3,74 - & 1,8498\,m - 11,8207\,n + 11\,p = 0. \end{array}\right.$$

From the above, new equations are formed by adding and subtracting as indicated below:

First Quarter + Second + Third + Fourth

$$+ 79'',45 - 8,4144\,m + 12,9412\,n + 130\,p = 0.$$

First Quarter + Second − Third − Fourth

$$+ 37'',33 + 81,4316\,m + 21,9732\,n = 0.$$

First Quarter − Second − Third + Fourth

$$+ 24'',57 + 19,5132\,m - 86,2188\,n = 0.$$

The solution of these equations gives,

$$m = -0'',505\,; \qquad n = +0'',171\,; \qquad p = -0'',661.$$

Hence by equation (2), $\delta\lambda = -0'',505 \times \operatorname{cosec} 23^{\circ}.\,28' = -1'',268$. Consequently the Sun's longitude as calculated in the Nautical Almanac for 1838, is *less* than the longitude determined by observation, by the mean quantity 1″,268. The mean error of R.A. for the year will be found by calculation to be the same.

Hence the mean Error of the Tabular Right Ascension (in time) = $-0^{s},086$.

By equation (3), $\delta I = +0'',171 \times \sec 23^{\circ}.\,28' = +0'',186$. Hence the obliquity assumed in the Nautical Almanac is *greater* than that by observation by 0″,186.

The value of p shews that within the Tropics the North Polar Distances, determined by the Circle observations and calculations contained in this Volume, should be *increased* by the mean quantity 0″,661.

The mean Error of the Solar Tables in Right Ascension for the year, as derived from 118 Tabular errors in pages (26)—(28), (observations of single limbs, and those on May 9 and Oct. 18 being excluded) will be found to be $-0^{s},196$.

Hence the assumed R.A. of the fundamental stars are *too great* by $-0^{s},086 + 0^{s},196$ that is, by $0^{s},110$.

COMPARISONS OF CLOCKS

AND

CHRONOMETERS.

1838.

*6—2

*** THE letter *H* is an abbreviation for Hardy, the Transit Clock: *G* for Graham, the Clock used with the Five-feet Equatoreal. *U* is a Sidereal and *W* a Solar Chronometer, each beating half-seconds.

Day of Comparison.	Clock.	Clock Time.	Chron.	Chronometer Time.
		h. m. s.		h. m. s.
Mar. 10	H.	12 . 14 . 7	W.	13 . 1 . 45,5
	H.	12 . 14 . 22	W.	13 . 2 . 0,5
	G.	12 . 18 . 45	W.	13 . 4 . 48,5
	G.	12 . 19 . 9	W.	13 . 5 . 12,5
Apr. 12	G.	13 . 24 . 4	W.	12 . 0 . 35,5
	G.	13 . 25 . 59	W.	12 . 2 . 30,0
	H.	13 . 26 . 44	W.	12 . 5 . 35,0
	H.	13 . 27 . 8	W.	12 . 5 . 59,0
May 8	G.	13 . 47 . 20	U.	13 . 45 . 13,5
	G.	13 . 48 . 2	U.	13 . 45 . 55,5
	H.	13 . 46 . 23	U.	13 . 47 . 10,4
	H.	13 . 46 . 47	U.	13 . 47 . 34,4
July 9	G.	18 . 11 . 11	W.	11 . 0 . 40,0
	G.	18 . 12 . 16	W.	11 . 1 . 45,0
	H.	18 . 14 . 18	W.	11 . 5 . 10,5
	H.	18 . 14 . 53	W.	11 . 5 . 45,5
	G.	19 . 14 . 52	W.	12 . 4 . 10,5
	G.	19 . 15 . 27	W.	12 . 4 . 45,5
	H.	19 . 17 . 18	W.	12 . 8 . 0,5
	H.	19 . 17 . 43	W.	12 . 8 . 25,5
July 31	G.	17 . 43 . 24	W.	9 . 5 . 30,0
	G.	17 . 44 . 49	W.	9 . 6 . 55,0
	H.	17 . 45 . 23	W.	9 . 10 . 40,0
	H.	17 . 46 . 3	W.	9 . 11 . 20,0
Oct. 17	H.	0 . 12 . 31	W.	10 . 30 . 10,5
	G.	0 . 17 . 27	W.	10 . 33 . 10,0
	G.	0 . 18 . 12	W.	10 . 33 . 55,0
Oct. 20	H.	20 . 25 . 8	U.	20 . 25 . 10,5
	H.	20 . 26 . 12	U.	20 . 26 . 14,5
	G.	0 . 18 . 51	U.	0 . 17 . 40,0
	G.	0 . 19 . 56	U.	0 . 18 . 45,0
Oct. 26	H.	0 . 12 . 47	U.	0 . 13 . 30,0
	H.	0 . 13 . 57	U.	0 . 14 . 40,0
	G.	0 . 17 . 53	U.	0 . 16 . 40,0
	G.	0 . 18 . 38	U.	0 . 17 . 25,0
Oct. 29	H.	1 . 46 . 49	U.	1 . 47 . 55,2
	G.	1 . 51 . 41	U.	1 . 50 . 34,0
	H.	4 . 6 . 3	W.	13 . 35 . 19,5
Nov. 1	H.	22 . 46 . 42	U.	22 . 47 . 10,5
	H.	22 . 47 . 14	U.	22 . 47 . 42,5
Nov. 1	G.	22 . 51 . 10	U.	22 . 49 . 5,5
	G.	22 . 51 . 32	U.	22 . 49 . 27,4
	H.	0 . 56 . 22	U.	0 . 56 . 50,5
	H.	0 . 57 . 17	U.	0 . 57 . 45,5
	G.	1 . 2 . 40	U.	1 . 0 . 35,0
	G.	1 . 3 . 46	U.	1 . 1 . 41,0
Nov. 2	H.	4 . 24 . 21	W.	13 . 38 . 4,0
	H.	4 . 25 . 1	W.	13 . 38 . 44,0
	G.	4 . 28 . 42	W.	13 . 39 . 43,0
	G.	4 . 29 . 3	W.	13 . 40 . 4,0
Nov. 7	H.	22 . 21 . 17	U.	22 . 22 . 15,5
	H.	22 . 21 . 57	U.	22 . 22 . 55,4
	G.	22 . 35 . 45	U.	22 . 31 . 28,0
	G.	22 . 36 . 7	U.	22 . 31 . 50,0
	G.	2 . 20 . 29	U.	2 . 16 . 10,0
	G.	2 . 21 . 3	U.	2 . 16 . 44,0
	H.	2 . 26 . 22	U.	2 . 27 . 19,0
	H.	2 . 26 . 43	U.	2 . 27 . 40,0
Nov. 9	H.	23 . 1 . 14	U.	23 . 2 . 10,5
	H.	23 . 2 . 8	U.	23 . 3 . 4,5
	H.	1 . 8 . 28	U.	1 . 9 . 24,0
	H.	1 . 9 . 0	U.	1 . 9 . 56,0
	G.	1 . 15 . 34	U.	1 . 11 . 2,0
	G.	1 . 15 . 54	U.	1 . 11 . 22,0
Nov. 10	H.	0 . 20 . 11	U.	0 . 20 . 57,0
	H.	0 . 21 . 4	U.	0 . 21 . 50,0
	H.	3 . 48 . 7	U.	3 . 48 . 51,8
	H.	3 . 48 . 55	U.	3 . 49 . 39,8
	G.	3 . 56 . 31	U.	3 . 51 . 40,6
	G.	3 . 56 . 56	U.	3 . 52 . 5,6
Nov. 12	H.	13 . 4 . 24	U.	13 . 5 . 39,4
	H.	13 . 4 . 47	U.	13 . 6 . 2,4
	G.	13 . 11 . 42	U.	13 . 7 . 3,5
	G.	13 . 12 . 2	U.	13 . 7 . 23,5
Nov. 13	H.	22 . 46 . 27	U.	22 . 47 . 39,0
	H.	22 . 46 . 56	U.	22 . 48 . 8,0
	G.	22 . 54 . 9	U.	22 . 49 . 25,0
	G.	22 . 54 . 33	U.	22 . 49 . 49,0
Nov. 14	H.	20 . 46 . 4	U.	20 . 47 . 15,5
	H.	20 . 46 . 54	U.	20 . 48 . 5,5
	H.	22 . 20 . 30	U.	22 . 21 . 41,0
	H.	22 . 21 . 50	U.	22 . 23 . 1,0
	H.	3 . 58 . 46	U.	3 . 59 . 54,6
	H.	4 . 0 . 31	U.	4 . 1 . 39,6

Day of Comparison.	Clock.	Clock Time.	Chron.	Chronometer Time.
		h. m. s.		h. m. s.
Nov. 14	G.	4. 0.59	U.	4. 2. 5,4
	G.	4. 1.28	U.	4. 2.34,4
Nov. 22	H.	22.19.50	W.	6.16.40,5
	H.	22.20.14	W.	6.17. 4,5
	G.	22.22. 7	W.	6.18. 0,5
	G.	22.22.38	W.	6.18.31,4
	H.	23.27.50	U.	23.28.30,0
	H.	23.28.40	U.	23.29.20,0
Nov. 24	H.	22.36.50	U.	22.37.15,5
	H.	22.37.37	U.	22.38. 2,5
	G.	22.49.57	U.	22.49. 9,5
	G.	22.50.21	U.	22.49.33,5
	H.	23.13.51	U.	23.14.16,0
	H.	23.14.18	U.	23.14.43,0
Nov. 26	G.	2. 4.33,3	U.	2. 3.25,5
	G.	2. 5.52,3	U.	2. 4.44,5
	H.	2. 6.29	U.	2. 6.50,5
	H.	2. 7.14	U.	2. 7.35,5
Dec. 3	G.	2.33.44	W.	9.38.21,5
	G.	2.34.44	W.	9.39.21,5
	H.	2.35. 5	W.	9.42.10,5
Dec. 3	H.	2.35.56	W.	9.43. 1,5
	G.	3.37.21	W.	10.41.45,0
	G.	3.37.46	W.	10.42.10,0
	H.	3.39.54	W.	10.46.46,0
	H.	3.42.14	W.	10.49. 5,5
Dec. 27	G.	3.38. 6	W.	9.14. 9,5
	G.	3.38.52	W.	9.14.55,5
	H.	3.57.50	W.	9.34.50,5
	H.	3.58.30	W.	9.35.35,5
	G.	8.30.22	W.	14. 5.35,5
	G.	8.31.27	W.	14. 6.40,5
	H.	8.33.55	W.	14.10.10,0
	H.	8.35.10	W.	14.11.25,0
	G.	9.50.10	W.	15.25.10,0
	G.	9.51.10	W.	15.26.10,0
	H.	10. 2.50	W.	15.38.50,5
	H.	10. 4. 6	W.	15.40. 6,5
Dec. 31	G.	3.37.53	W.	8.57.35,0
	G.	3.38.33	W.	8.58.15,0
	H.	3.40.17	W.	9. 1.35,0
	H.	3.41. 8	W.	9. 2.26,0
	G.	4.13.29	W.	9.33. 5,0
	G.	4.14. 1	W.	9.33.37,0
	H.	4.29. 0	W.	9.50.10,0
	H.	4.29.47	W.	9.50.57,0

THE *following* TABLES *exhibit the* CALCULATIONS *from the foregoing Comparisons, of the* RATES *and* ERRORS *of* CHRONOMETER *U and* CLOCK GRAHAM *which are employed in the* OBSERVATIONS *of* ENCKE'S COMET.

I. RATES AND ERRORS OF CHRONOMETER *U*.

Approximate Mean Time of Comparison.	Approximate Sidereal Time of Comparison.	*U* fast at the time of Comparison.	Sidereal Interval between Consecutive Comparisons.	Gain of *U* in the Interval.	Adopted Gaining Rate.	*U* fast at the 0^h preceding the Comparison.
d. h.	*h. m.*	*s.*	*d. h. m.*	*s.*	*s.*	*s.*
Oct. 20. 6	20.25	+ 1,0			+ 5,7	− 3,9
			6. 3.48	+ 35,4		
26.10	0.13	+ 36,4			+ 6,5	+ 36,3
			3. 1.34	+ 21,1		
29.11	1.47	+ 57,5			+ 7,0	+ 57,0
			2.21. 0	+ 21,0		
Nov. 1. 8	22.47	+ 18,5*			+ 6,6	+ 12,2
			5,59.35	+ 26,7		
7. 7	22.22	+ 45,2			− 6,0	+ 44,6†
			4. 5	− 1,5		
7.11	2.27	+ 43,7				
			1.20.35	− 1,6		
9. 8	23. 2	+ 42,1			− 6,5	+ 42,0†
			2. 7	− 0,5		
9.10	1. 9	+ 41,6				
			23.12	− 10,3		
10. 9	0.21	+ 31,3			− 11,1	+ 31,6†
			3.27	− 1,3		
10.12	3.48	+ 30,0				
			2. 9.17	− 30,8		
12.22	13. 5	+ 59,2*			− 12,0	+ 65,7‖
			9.42	− 3,7		
13. 7	22.47	+ 55,5			− 9,2	+ 64,2
			22. 0	− 0,9		
14. 5	20.47	+ 54,6			− 11,0	+ 64,3†
			1.35	− 0,6		
14. 7	22.22	+ 54,0				
			5.39	− 2,4		
14.12	4. 1	+ 51,6				
			7.19.28	− 32,8		
22. 7	23.29	+ 18,8			− 7,3	+ 25,9
			1.23. 9	− 15,7		
24. 6	22.38	+ 3,1			− 8,1	+ 10,6†
			0.37	− 0,5		
24. 7	23.15	+ 2,6				
			2. 2.53	− 4,8		
26.10	2. 8	− 2,2				

* There can be little doubt that before the comparison of Nov. 1, *U* was put backward 1^m, and before that of Nov. 12, it was put forward 1^m. No memoranda were made at the time.

† When several comparisons occur on the same day, the 0^h preceding the *mean* of the times of comparison is to be taken.

‖ It is supposed that *U* was put forward *before* the observations of the Comet on Nov. 12.

II. RATES AND ERRORS OF CLOCK GRAHAM.

Approximate Mean Time of Comparison.	Approximate Sidereal Time of Comparison.	Graham fast at the time of Comparison.	Sidereal Interval between Consecutive Comparisons.	Gain of Graham in the Interval.	Adopted Gaining Rate.	Graham fast at the 0^h preceding the Comparison.
d. h.	*h. m.*	*m. s.*	*d. h. m.*	*s.*	*s.*	*m. s.*
Oct. 17.11	0.17	+0.56,5			+5,53	+0.56,4
20.11	0.19	+1.13,1	3. 0. 2	+16,6	+5,70	+1.13,0
26.10	0.16	+1.49,4	5.23.57	+36,3	+5,32	+1.49,3
29.11	1.50	+2. 4,6	3. 1.34	+15,2	+5,70	+2. 4,1
Nov. 1. 8	22.49	+2.23,1	2.20.59	+18,5	+6,52	+2.16,9*
1.10	1. 1	+2.23,6	2.12	+0,5		
2.14	4.27	+2.31,2	1. 3.26	+7,6	+6,56	+2.30,0
7. 7	22.31	+5. 2,2†	4.18. 4	+31,0	+5,80	+5. 2,4*
7.11	2.12	+5. 2,7	3.41	+0,5		
9.10	1.10	+5.13,6	1.22.58	+10,9	+5,90	+5.13,3
10.12	3.52	+5.20,4	1. 2.42	+6,8	+6,49	+5.19,4
12.22	13. 6	+5.37,7	2. 9.14	+17,3	+5,85	+5.34,5
13. 7	22.49	+3.39,5	9.43	+1,8	+4,56	+5.35,2
14.12	4. 2	−0.14,8†	1. 5.13	+5,7	+4,68	−0.15,6
22. 6	22.22	+0.35,8	7.18.20	+50,6	+6,94	+0.29,3
24. 7	22.49	+0.50,1	2. 0.27	+14,3	+7,17	+0.43,3
26.10	2. 5	+1. 5,6	2. 3.16	+15,5		

* In these instances the 0^h preceding the *mean* of the times of comparison is to be taken.

† Before the observations and comparisons of Nov. 7, Graham was put forward 2^m (by mistake), and before those of Nov. 14 it was put backward 6^m.

DIFFERENCES

OF

RIGHT ASCENSION AND NORTH POLAR DISTANCE,

OF

ENCKE'S COMET

AND

STARS SITUATED NEAR ITS APPARENT PATH,

OBSERVED WITH THE NORTHUMBERLAND EQUATOREAL
AND THE FIVE-FEET EQUATOREAL.

1838.

DIFFERENCES *of* RIGHT ASCENSION *of* ENCKE'S COMET *and neighbouring* STARS, *as observed with the* NORTHUMBERLAND EQUATOREAL.

Day of Observation.	Number of the Series.	Object.	Time of Observation by Chronometer *U*.	Corresponding Sidereal Time.	Reading of Moveable Index of Hour Circle.	Correction for rate of Hour Circle.	Apparent excess of R.A. of Comet above R.A. of ∗.	Observer.
1838.			*h. m. s.*	*h. m. s.*	*h. m s.*	*s.*	*m. s.*	
Oct. 20	1	(*a*) Comet ∗ (A)	1.45. 0	1.45. 2,3	11.56.15 11.56.18		-0. 3	C.
Oct. 29	2	Comet (*b*) ∗ (B)	2.35. 0	2.34. 2,2	11.55.58 11.55.13	-0,9	+0.45,9	C.
	3	Comet ∗ (B)	2.43.25	2.42.27,2	11.55.48 11.55.18	-0,9	+0.30,9	C.
	4	Comet ∗ (B)	2.57.38	2.56.40,1	11.55.37 11.55.18	-0,9	+0.19,9	G.
	5	Comet ∗ (B)	3. 2.57	3. 1.59,1	11.55.32 11.55.21	-0,9	+0.11,9	G.
	6	Comet ∗ (B)	3. 8.30	3. 7.32,1	Comet and ∗ coincident.		0. 0,0	C.
	7	(*c*) Comet ι Cephei	3.14.53	3.13.55,1	11.54.42 12. 5. 6	-0,9	-10.23,1	C.
Nov. 9	8	Comet ∗ (C)	22.10.24 22.14.43	22. 9.41,5 22.14. 0,5	11.57.33 11.58.25	-25,6	-0.26,4	C.
	9	Comet ∗ (C)	22.26.20 22.31.15	22.25.37,6 22.30.32,6	11.58.57 12. 0. 3	-29,2	-0.36,8	C.
	10	(*d*) Comet ∗ (C)	22.38.36 22.42.47	22.37.53,6 22.42. 4,6	11.58. 2 11.59. 7	-24,9	-0.40,1	C.
Nov. 10	11	(*e*) ∗ (D) Comet	22.56.47 23. 2. 5	22.56.14,9 23. 1.33,0	12. 0.55 12. 1.27	+5,6	+0.26,4	C.

Adopted Hourly Rate of Hour Circle Oct. 29 $= + 0^{m}.17^{s}$. Nov. 9 $= + 5^{m}.56^{s}$. Nov. 10 $= + 1^{m}.3^{s}$.

(*a*) This set of observations is worth little: the time by *U* was noted very roughly, and the rate of the Hour Circle was not observed.

(*b*) A star of about the 8th magnitude: its N.P.D. was nearly the same as that of the Comet. As the time of observing the star was not noted, the correction for rate of Hour Circle is calculated on the assumption that the interval between the observations of the Comet and star was 3^{m}.

(*c*) In this set of observations the star and Comet were bisected by the cross wire of the finder.

(*d*) This set was not taken at the same edge of the field as the two preceding.

(*e*) Three stars nearly in a line, two of equal brightness and brighter than the third: this the preceding one of the three.

Day of Observation.	Number of the Series.	Object.	Time of Observation by Chronometer *U*.	Corresponding Sidereal Time.	Reading of Moveable Index of Hour Circle.	Corection for rate of Hour Circle.	Apparent excess of R.A. of Comet above R.A. of ✱.	Observer.
1838.			*h. m. s.*	*h. m. s.*	*h. m. s.*	*s.*	*m. s.*	
Nov. 10	12	✱ (D) Comet	23. 8.22 23.10.45	23. 7.50,0 23.10.13,0	12. 1. 7 12. 1.33	+ 2,5	+ 0.23,5	C.
	13	✱ (D) Comet	23.18.26 23.21. 1	23.17.54,1 23.20.29,1	12. 1.17 12. 1.40	+ 2,7	+ 0.20,3	C.
Nov. 12	14	Comet (*a*) ✱ (E)	23.56.56 23.57.56	23.55.50,3 23.56.50,3	11.57.56 11.59.50	+ 0,8	- 0.14,8	G.
	15	Comet ✱ (E)	23.59.20 24. 0.11	23.58. 4,3 23.58.55,3	11.57.54 11.58. 6	+ 0,7	- 0.12,7	G.
	16	Comet ✱ (E)	0. 1. 0 0. 1.44	23.59.54,3 24. 0.38,3	11.57.54 11.58. 6	+ 0,6	- 0.12,6	G.
	17	Comet ✱ (E)	0. 2.33 0. 3.26	0. 1.27,3 0. 2.20,3	11.57.50 11.58. 5	+ 0,7	- 0.15,7	G.
Nov. 13	18	Comet ✱ (F)	21.32.25 21.41.17	21.31.29,1 21.40.21,1	11.55.45 11.55.47	- 5,2	+ 0. 3,2	C.
	19	Comet ✱ (F)	21.44.40 21.46.43	21.43.44,1 21.45.47,1	11.55.46 11.55.50	- 1,2	- 0. 2,8	C.
	20	Comet ✱ (F)	21.51.23 21.54.28	21.50.27,2 21.53.32,2	11.55.50 11.55.55	- 1,8	- 0. 3,2	C.
	21	Comet ✱ (F)	21.56.39 21.58.46	21.55.43,2 21.57.50,2	11.55.51 11.55.58	- 1,2	- 0. 5,8	C.
Nov. 14	22	✱ (G) Comet	21.25.43 21.28.35	21.24.48,5 21.27.40,5	11.56.27 11.55. 3	+ 2,5	- 1.26,5	C.
	23	✱ (G) Comet	21.33.18 21.36.27	21.32.23,6 21.35.32,6	11.56.30 11.55. 7	+ 2,7	- 1.25,7	C.
	24	(*b*) ✱ (G) Comet	21.41.13 21.44.35	21.40.18,6 21.43.40,6	11.56.41 11.55.13	+ 2,9	- 1.30,9	C.
Nov. 22	25	(*c*) Comet ✱ (H)	22.33.10 22.35.48	22.32.51,0 22.35.29,0	11.54.57 11.55. 0	- 8,5	+ 0. 5,5	C.

Adopted Hourly rate of Hour Circle Nov. 12 = $-0^{m}.48^{s}$. Nov. 13 = $+0^{m}.35^{s}$. Nov. 14 = $+0^{m}.51^{s}$. Nov. 22 = $+3^{m}.16^{s}$.

(*a*) The star was judged to be of the 8th magnitude. The Hour Circle reading for the star is supposed to be a mistake for 11.58.10. There appears to be some mistake in all the readings of the Hour Circle on this day, as the star's R.A. was less than that of the Comet. The signs of the excesses are changed in the subsequent calculations.

(*b*) The observations this evening were unsatisfactory, the sky being very hazy. The star compared was a bright one, perhaps of 7th magnitude: two stars preceded it of less magnitude and nearly the same N.P.D. as the Comet.

(*c*) The observations of this day very doubtful, the Comet being faint and low, and the star compared seen with difficulty. Cloudy weather prevented observations from the 14th to the 22d.

Day of Observation.	Number of the Series.	Object.	Time of Observation by Chronometer *U*.	Corresponding Sidereal Time.	Reading of Moveable Index of Hour Circle.	Correction for rate of Hour Circle.	Apparent excess of R.A. of Comet above R.A. of ✳.	Observer.
1838.			*h. m. s.*	*h. m. s.*	*h. m. s.*	*s.*	*m. s.*	
Nov. 22	26	Comet ✳ (H)	22 . 50 . 44 22 . 53 . 55	22 . 50 . 25,1 22 . 53 . 36,1	11 . 55 . 8 11 . 55 . 14	– 10,4	+ 0 . 4,4	C.
Nov. 24	27	(*a*) Comet *n* Herculis	21 . 39 . 10 21 . 40 . 11	21 . 39 . 6,7 21 . 40 . 7,7			– 1 . 1,0	C.
	28	(*b*) Comet *n* Herculis	21 . 42 . 20,5 21 . 43 . 21,7	21 . 42 . 17,2 21 . 43 . 18,4			– 1 . 1,2	C.
	29	(*b*) Comet *n* Herculis	21 . 45 . 27,3 21 . 46 . 29,0	21 . 45 . 24,0 21 . 46 . 25,7			– 1 . 1,7	C.
	30	Comet *n* Herculis	21 . 48 . 14,8 21 . 49 . 16,0	21 . 48 . 11,6 21 . 49 . 12,8			– 1 . 1,2	C.
	31	(*c*) Comet *n* Herculis	22 . 29 . 38 22 . 30 . 44	22 . 29 . 35,0 22 . 30 . 41,0			– 1 . 6,0	C.

Adopted Hourly rate of Hour Circle Nov. 22 = + 3^{m}. 16^{s}.

(*a*) Time by *U* doubtful.

(*b*) These two sets good.

(*c*) Extremely doubtful, the Comet too low. The observations on the 24th were taken with the Instrument stationary.

DIFFERENCES *of* NORTH POLAR DISTANCE *of* ENCKE'S COMET *and neighbouring* STARS, *as observed with the* NORTHUMBERLAND EQUATOREAL.

Day of Observation.	Number of the Series.	Object.	Time of Observation by Chronometer *U*.	Corresponding Sidereal Time.	Sector Reading.	Apparent excess of N.P.D. of Comet above N.P.D. of ∗.	Observer.
1838.			*h. m. s.*	*h. m. s.*	*d. r.*	′ ″	
Oct. 20	32	(*a*) Comet ∗ (A)	1 . 45 . 0	1 . 45 . 2,3	0,00 3,42	− 11 . 36,8	C.
Oct. 29	33	(*a*) Comet ∗ (B)	3 . 8 . 30	3 . 7 . 32,1	Comet and ∗ coincident.	0 . 0,0	C.
	34	(*b*) Comet ι Cephei	3 . 20 . 30	3 . 19 . 32,0	0,00 8,45	− 28 . 41,6	C.
Nov. 9	35	(*c*) Comet ∗ (C)	21 . 42 . 49 21 . 47 . 0	21 . 42 . 6,4 21 . 46 . 17,4	9 . 12,296 0 . 18,592	+ 32 . 54,0	C.
	36	Comet ∗ (C)	21 . 59 . 57 22 . 4 . 30	21 . 59 . 14,5 22 . 3 . 47,5	17 . 1,912 6 . 15,577	+ 35 . 3,6	C.
	37	Comet ∗ (C)	22 . 47 . 35 22 . 51 . 54	22 . 46 . 52,7 22 . 51 . 11,7	19 . 7,058 6 . 17,387	+ 42 . 24,7	C.
Nov. 10	38	Comet ∗ (D)	23 . 37 . 40 23 . 40 . 15	23 . 37 . 8,2 23 . 39 . 43,2	11 . 4,613 8 . 2,740	+ 10 . 30,1	C.
	39	Comet ∗ (D)	23 . 48 . 45 23 . 53 . 20	23 . 48 . 13,3 23 . 52 . 48,3	11 . 13,846 8 . 5,417	+ 11 . 36,0	C.
Nov. 13	40	Comet ∗ (F)	22 . 6 . 43 22 . 10 . 13	22 . 5 . 47,3 22 . 9 . 17,3	17 . 13,200 5 . 3,533	+ 42 . 22,2	C.
	41	Comet (*d*) ∗ (F)	22 . 13 . 8 22 . 16 . 7	22 . 12 . 12,3 22 . 15 . 11,3	17 . 18,070 5 . 2,198	+ 43 . 24,6	C.
	42	Comet (*d*) ∗ (F)	22 . 18 . 53 22 . 22 . 40	22 . 17 . 57,3 22 . 21 . 44,3	17 . 18,640 5 . 4,162	+ 43 . 10,6	C.
	43	Comet ∗ (F)	22 . 28 . 20 22 . 30 . 50	22 . 27 . 24,4 22 . 29 . 54,4	18 . 4,798 5 . 4,884	+ 44 . 7,8	C.

One sector division = 3′. 23″,74. One revolution of the microscope-micrometer = 10″,063.

(*a*) The observations of Oct. 20 and Oct. 29 are very rough. The sector microscope not being adjusted for use, the fractional parts of the sector divisions are estimations by a scale and pair of compasses.

(*b*) The Comet and star were bisected by the cross wire of the finder.

(*c*) Apparently an error of 1^d in one of the sector readings: the calculations are made accordingly.

(*d*) The micrometer revolutions were written down 12 and 14 respectively, and have been diminished 10^r conjecturally.

Day of Observation.	Number of the Series.	Object.	Time of Observation by Chronometer *U*.	Corresponding Sidereal Time.	Sector Reading.	Apparent excess of N.P.D. of Comet above N.P.D. of ✱.	Observer.
1838.			*h. m. s.*	*h. m. s.*	*d. r.*	′ ″	
Nov. 14	44	(*a*) Comet	21 . 50 . 55	21 . 50 . 0,7	15 . 12,686	− 8 . 12,0	C.
		✱ (G)	21 . 55 . 36	21 . 54 . 41,7	18 . 0,843		
	45	✱ (G)	21 . 59 . 35	21 . 58 . 40,8	18 . 0,393	− 6 . 11,3	C.
		Comet	22 . 3 . 39	22 . 2 . 44,8	16 . 3,994		
Nov. 22	46	(*b*) Comet	22 . 39 . 15	22 . 38 . 56,0	12 . 7,743	+ 20 . 17,3	C.
		✱ (H)	22 . 43 . 25	22 . 43 . 6,0	6 . 8,252		
	47	(*b*) Comet	22 . 58 . 45	22 . 58 . 26,1	11 . 7,346	+ 22 . 39,9	C.
		✱ (H)	23 . 3 . 35	23 . 3 . 16,1	4 . 13,930		
Nov. 24	48	Comet	21 . 57 . 25	21 . 57 . 21,8	8 . 16,020	+ 1 . 45,9	C.
		n Herculis	22 . 1 . 46	22 . 1 . 42,8	8 . 5,500		
	49	Comet	22 . 7 . 33	22 . 7 . 29,8	8 . 16,930	+ 2 . 39,7	C.
		n Herculis	22 . 10 . 14	22 . 10 . 10,8	8 . 1,064		
	50	Comet	22 . 21 . 17	22 . 21 . 13,9	8 . 11,356	+ 3 . 42,8	C.
		n Herculis	22 . 23 . 49	22 . 23 . 45,9	7 . 9,462		

One sector division = 3′. 23″,74. One revolution of the microscope-micrometer = 10″,063.

(*a*) Very hazy and doubtful. This evening's observations were unsatisfactory.

(*b*) These sets of observations not good: the second scarcely worth any thing, the Comet being low and the star faint.

DIFFERENCES *of* RIGHT ASCENSION *of* ENCKE'S COMET *and neighbouring* STARS, *as observed with the* FIVE-FEET EQUATOREAL.

Day of Observation.	Number of the Series.	Object.	Time of Observation by Graham.	Corresponding Sidereal Time.	Apparent excess of R.A. of Comet above R.A. of ⚹.	Observer.
1838.			h. m. s.	h. m. s.	m. s.	
Oct. 4	51	(*a*) Comet θ Persei	2 . 50 . 0 2 . 58 . 0	2 . 50 . 0 2 . 58 . 0	− 8 . 0,0	G.
	52	(*a*) Comet θ Persei	3 . 30 . 50 3 . 38 . 30	3 . 30 . 50 3 . 38 . 30	− 7 . 40,0	G.
Oct. 17	53	(*b*) Comet θ Persei	23 . 13 . 24 0 . 4 . 48	23 . 12 . 27,8 0 . 3 . 51,6	− 51 . 23,8	C.
	54	Comet (*c*) ⚹ (I)	3 . 18 . 19 3 . 19 . 22	3 . 17 . 21,8 3 . 18 . 24,8	− 1 . 3,0	C.
	55	Comet ⚹ (I)	3 . 20 . 40 3 . 21 . 52	3 . 19 . 42,8 3 . 20 . 54,8	− 1 . 12,0	C.
	56	Comet ⚹ (I)	3 . 31 . 0 3 . 32 . 18	3 . 30 . 2,8 3 . 31 . 20,8	− 1 . 18,0	C.
	57	Comet ⚹ (I)	3 . 35 . 52 3 . 37 . 10	3 . 34 . 54,8 3 . 36 . 12,8	− 1 . 18,0	G.
	58	Comet ⚹ (I)	3 . 38 . 10 3 . 39 . 30	3 . 37 . 12,8 3 . 38 . 32,8	− 1 . 20,0	G.
Oct. 20	59	Comet Cassiopeiæ	23 . 50 . 28 0 . 14 . 40	23 . 49 . 15,0 0 . 13 . 27,0	− 24 . 12,0	C.
Oct. 26	60	(*d*) Comet (*d*) ⚹ (K)	21 . 6 . 17 21 . 8 . 43	21 . 4 . 28,3 21 . 6 . 54,3	− 1 . 26,0	C.
	61	Comet ⚹ (K)	21 . 11 . 36 21 . 12 . 51	21 . 9 . 47,3 21 . 11 . 2,3	− 1 . 15,0	C.
	62	Comet ⚹ (K)	21 . 16 . 47 21 . 18 . 0	21 . 14 . 58,3 21 . 16 . 11,3	− 1 . 13,0	C.
	63	Comet ⚹ (K)	21 . 21 . 0 21 . 22 . 14	21 . 19 . 11,3 21 . 20 . 25,3	− 1 . 14,0	C.
	64	Comet ⚹ (K)	22 . 34 . 48 22 . 37 . 4	22 . 32 . 59,0 22 . 35 . 15,0	− 2 . 16,0	C.
	65	Comet ⚹ (K)	22 . 43 . 42 22 . 46 . 10	22 . 41 . 53,0 22 . 44 . 21,0	− 2 . 28,0	C.

(*a*) These were rough observations taken on the first occasion of the Comet's being visible at this Observatory. The Comet was in each instance judged to be in the center of the field. The second observation much better than the first. No comparison of clocks being made till the 17th, the sidereal times are very uncertain.

(*b*) The times noted here (and elsewhere when nothing is said to the contrary), are the times of disappearance of the star and bisection of the Comet at the straight boundary of the field.

(*c*) The star was considered to be about the 6th magnitude.

(*d*) Very doubtful: an error of 1^m in one of the observations.

Day of Observation.	Number of the Series.	Object.	Time of Observation by Graham.	Corresponding Sidereal Time.	Apparent excess of R.A. of Comet above R.A. of ∗.	Observer.
1838.			h. m. s.	h. m. s.	m. s.	
Oct. 26	66	(a) Comet ∗ (K)	22 . 50 . 16 22 . 52 . 43	22 . 48 . 27,0 22 . 50 . 54,0	- 2 . 27,0	C.
	67	Comet (b) ∗ (L)	2 . 42 . 58 2 . 47 . 52	2 . 41 . 8,1 2 . 46 . 2,0	- 4 . 53,9	C.
Oct. 29	68	(c) ∗ (M) (c) Comet	22 . 12 . 20 22 . 16 . 45	22 . 10 . 16,3 22 . 14 . 41,3	+ 4 . 25,0	G.
	69	(d) ∗ (M) (d) Comet	22 . 14 . 18 22 . 18 . 50	22 . 12 . 14,3 22 . 16 . 46,3	+ 4 . 32,0	G.
	70	(e) Comet (e) ι Cephei	1 . 26 . 57 1 . 34 . 47	1 . 24 . 52,6 1 . 32 . 42,6	- 7 . 50,0	C.
Nov. 1	71	∗ (N) (f) Comet	22 . 24 . 55 22 . 25 . 33	22 . 22 . 32,1 22 . 23 . 10,1	+ 0 . 38,0	G.
	72	∗ (N) Comet	22 . 29 . 5 22 . 29 . 38	22 . 26 . 42,0 22 . 27 . 15,0	+ 0 . 33,0	G.
	73	∗ (N) (g) Comet	22 . 31 . 20 22 . 31 . 38	22 . 28 . 57,0 22 . 29 . 15,0	+ 0 . 18,0	G.
	74	(h) Comet 6 Cephei	23 . 59 . 50 0 . 16 . 36	23 . 57 . 26,6 0 . 14 . 12,5	- 14 . 50,9	C.
	75	(i) Comet 6 Cephei	0 . 30 . 38 0 . 47 . 57	0 . 28 . 14,5 0 . 45 . 33,4	- 15 . 23,9	C.
	76	Comet 6 Cephei	1 . 2 . 10 1 . 20 . 34	0 . 59 . 46,3 1 . 18 . 10,2	- 16 . 28,9	G.
Nov. 2	77	(k) Comet θ Cephei	3 . 48 . 45 3 . 53 . 5	3 . 46 . 14,0 3 . 50 . 34,0	- 2 . 32,0	G.
	78	(l) Comet θ Cephei	4 . 1 . 18 4 . 4 . 0	3 . 58 . 46,9 4 . 1 . 28,9	- 2 . 42,0	G.
	79	Comet θ Cephei	4 . 10 . 0 4 . 12 . 52	4 . 7 . 28,9 4 . 10 . 20,9	- 2 . 52,0	G.
	80	(m) Comet θ Cephei	4 . 18 . 55 4 . 22 . 0	4 . 16 . 23,8 4 . 19 . 28,8	- 3 . 5,0	G.

(a) The Moon shining and the Comet in consequence very indistinct.
(b) Two stars of nearly the same magnitude; this the preceding one.
(c) Star and Comet entering the field.
(d) Star and Comet at middle wire.
(e) The times are those of leaving the teeth of the comb and are probably not very accurate.
(f) Very doubtful. (g) More satisfactory.
(h) In this and the two following sets the Comet was taken at the teeth of the comb and the star at the middle wire. Distance in time of teeth of comb from the middle wire = $1^m.\ 55^s$.
(i) Moon shining and Comet extremely faint.
(k) Comet at comb, and θ Cephei at middle wire. Distance in time of comb from middle wire = $1^m.\ 48^s$.
(l) The Comet and star at comb, in this and the two following sets.
(m) The Comet was brighter this night than on the preceding.

Day of Observation.	Number of the Series.	Object.	Time of Observation by Graham.	Corresponding Sidereal Time.	Apparent excess of R.A. of Comet above R.A. of ✳.	Observer.
1838.			h. m. s.	h. m. s.	m. s.	
Nov. 7	81	(a) Comet ✳ (O)	22. 2. 0 22. 2.35	21.56.58,1 21.57.33,1	−0.35,0	G.
	82	Comet ✳ (O)	22. 6. 0 22. 6.34	22. 0.58,1 22. 1.32,1	−0.34,0	G.
	83	Comet C Draconis	22.10.39 22.19.58	22. 5.37,1 22.14.56,1	−9.19,0	G.
	84	Comet C Draconis	1.45.14 1.57. 4	1.40.11,2 1.52. 1,2	−11.50,0	G.
	85	Comet C Draconis	2.13.18 2.25.32	2. 8.15,1 2.20.29,1	−12.14,0	G.
Nov. 9	86	γ Draconis Comet	21.42.12 21.49.30	21.36.59,3 21.44.17,3	+7.18,0	G.
	87	(b) γ Draconis Comet	21.53.30 22. 0.40	21.48.17,2 21.55.27,2	+7.10,0	G.
Nov. 10	88	Comet (c) θ Herculis	21.12. 5 21.15. 7	21. 6.46,4 21. 9.48,4	−3. 2,0	G.
	89	Comet θ Herculis	21.19.22 21.22.18	21.14. 3,3 21.16.59,3	−2.56,0	G.
	90	Comet θ Herculis	21.26.13 21.29.21	21.20.54,3 21.24. 2,3	−3. 8,0	G.
	91	(d) Comet θ Herculis	21.33.10 21.36.10	21.27.51,3 21.30.51,3	−3. 0,0	G.
Nov. 12	92	(e) Comet } ✳ (E) }	0.33.35	0.28. 0,4	0. 0,0	G.
	93	(f) ρ Herculis Comet	0.37.10 0.44.56	0.31.35,4 0.39.21,4	+7.46,0	G.
	94	ρ Herculis Comet	1.20.38 1.28.21	1.15. 3,2 1.22.46,2	+7.43,0	G.
	95	(g) ρ Herculis Comet	1.32.55 1.40.36	1.27.20,1 1.35. 1,1	+7.41,0	G.
Nov. 13	96	(h) Comet ρ Herculis	22.22.53 22.23.55	22.17.13,5 22.18.15,5	+0.27,0	G.

(a) The Comet and stars were observed at the teeth of the comb on this day and on Nov. 9, 10 and 12.
(b) This set more satisfactory than the preceding.
(c) Lamp-light bad.
(d) The Comet to night was ill-defined and misty: a great quantity of diffused light.
(e) The Comet and star at the time noted were apparently coincident.
(f) A power of 30 was used in this and the following set of observations. The Comet was well-defined and admitted of accurate observation.
(g) With a power of 120.
(h) Comet at comb, star at 5th wire: interval from comb to 5th wire $= 1^{m}.29^{s}$. Power of 46 used this day.

Day of Observation.	Number of the Series.	Object.	Time of Observation by Graham.	Corresponding Sidereal Time.	Apparent excess of R.A. of Comet above R.A. of ✳.	Observer.
1838.			h. m. s.	h. m. s.	m. s.	
Nov. 13	97	(*a*) Comet *ρ* Herculis	22 . 26 . 55 22 . 27 . 41	22 . 21 . 15,5 22 . 22 . 1,5	+ 0 . 17,0	G.
	98	(*a*) Comet *ρ* Herculis	22 . 30 . 32 22 . 31 . 17	22 . 24 . 52,5 22 . 25 . 37,5	+ 0 . 18,0	G.
Nov. 14	99	(*b*) Comet *a* Herculis	21 . 13 . 56 21 . 17 . 8	21 . 14 . 12,2 21 . 17 . 24,2	− 3 . 12,0	G.
	100	(*b*) Comet *a* Herculis	21 . 19 . 57 21 . 23 . 5	21 . 20 . 13,1 21 . 23 . 21,1	− 3 . 8,0	G.
	101	(*b*) Comet *a* Herculis	21 . 28 . 20 21 . 31 . 30	21 . 28 . 36,1 21 . 31 . 46,1	− 3 . 10,0	G.
Nov. 22	102	(*c*) Comet *i* Herculis	21 . 51 . 54 22 . 0 . 28	21 . 51 . 18,4 21 . 59 . 52,4	− 7 . 43,4	G.
	103	(*c*) Comet *i* Herculis	22 . 4 . 33 22 . 13 . 12	22 . 3 . 57,3 22 . 12 . 36,3	− 7 . 48,4	G.
	104	(*d*) Comet *i* Herculis	22 . 30 . 40 22 . 39 . 47	22 . 30 . 4,2 22 . 39 . 11,2	− 7 . 55,0	G.
Nov. 24	105	Comet (*e*) 33 Herculis	21 . 42 . 27 21 . 47 . 50	21 . 41 . 37,2 21 . 47 . 0,2	− 5 . 23,0	G.
	106	Comet (*f*) 33 Herculis	21 . 51 . 23 21 . 56 . 49	21 . 50 . 33,2 21 . 55 . 59,2	− 5 . 26,0	G.
	107	Comet *n* Herculis	22 . 0 . 22 22 . 1 . 24	21 . 59 . 32,1 22 . 0 . 34,1	− 1 . 2,0	G.
	108	Comet *n* Herculis	22 . 3 . 37 22 . 4 . 39	22 . 2 . 47,1 22 . 3 . 49,1	− 1 . 2,0	G.
	109	Comet *n* Herculis	22 . 6 . 14 22 . 7 . 18	22 . 5 . 24,1 22 . 6 . 28,1	− 1 . 4,0	G.
	110	Comet *n* Herculis	22 . 8 . 45 22 . 9 . 49	22 . 7 . 55,1 22 . 8 . 59,1	− 1 . 4,0	G.
	111	(*g*) Comet *n* Herculis	22 . 11 . 4 22 . 12 . 10	22 . 10 . 14,1 22 . 11 . 20,1	− 1 . 6,0	G.

(*a*) Comet at comb, star at middle wire. Interval = $1^{m}.3^{s}$.

(*b*) Comet and star at comb. This night's observations pretty good. The Comet was bright, and at the part observed, (which is the lower as seen in the Telescope) well-defined.

(*c*) Comet at comb, star at middle wire. Interval = $50^{s},6$.

(*d*) Comet at comb, star at 5th wire. Adopted interval = $1^{m}.12^{s}$. The microscopes were cleaned before this set, having previously been misty. The Comet was bright and well-defined: its light not so diffused as when last seen.

(*e*) Comet and star at comb in the observations of this day.

(*f*) The minutes were written down 51.

(*g*) The Comet was faint during this night's observations.

DIFFERENCES OF NORTH POLAR DISTANCE *of* ENCKE'S COMET *and neighbouring* STARS, *as observed with the* FIVE-FEET EQUATOREAL.

Day of Observation.	Number of the Series.	Object.	Time of Observation by Graham.	Corresponding Sidereal Time.	Pointer Reading.	Microscope or Micrometer.	Microscope or Micrometer Reading.	Correction for error of Division.	Correction for Runs.	Concluded Reading of Declination Circle.	Apparent excess of N.P.D. of Comet above N.P.D. of ∗.	Observer.
1838.			h. m. s.	h. m. s.	° ′		′ ″ r	″	″	° ′ ″	° ′ ″	
Oct. 4	112	(*a*) Comet θ Persei	2 . 50 . 0 2 . 58 . 0	2 . 50 . 0 2 . 58 . 0	227 . 55 221 . 30	A. A.	2 . 13 1 . 30	5,5 12,3	−2,1 −1,4	227 . 57 . 16,4 221 . 31 . 40,9	+6 . 25 . 35,5	G.
	113	(*a*) Comet θ Persei	3 . 30 . 50 3 . 38 . 30	3 . 30 . 50 3 . 38 . 30	227 . 55 221 . 30	A. A.	2 . 30 1 . 54	5,5 12,3	−2,4 −1,8	227 . 57 . 33,1 221 . 32 . 4,5	+6 . 25 . 28,6	G.
Oct. 17	114	(*b*) Comet θ Persei	23 . 13 . 24 0 . 4 . 48	23 . 12 . 27,8 0 . 3 . 51,6	217 . 0 221 . 30	A. B. A. B.	4 . 58,3 4 . 40,1 1 . 12,6 0 . 54,2	12,2 87,6 12,3 80,5	0,0 0,0 −1,1 0,0	217 . 5 . 39,1 221 . 31 . 49,3	−4 . 26 . 10,2	C.
	115	Comet ∗ (I)	3 . 18 . 19	3 . 17 . 21,8						on the same parallel	0 . 0 . 0,0	C.
	116	Comet. M. (*c*) ∗ (I). M.	3 . 47 . 20	3 . 46 . 22,7		L. L.	10,209 8,320				−0 . 1 . 3,1	C.
	117	Comet. M. ∗ (I). M.	3 . 53 . 0	3 . 52 . 2,7		L. L.	10,550 8,148				−0 . 1 . 20,2	C.
	118	(*d*) Comet. M. ∗ (I). M.	3 . 57 . 35	3 . 56 . 37,7		L. L.	10,328 8,152				−0 . 1 . 12,7	C.
Oct. 20	119	Comet ε Cassiopeiæ	23 . 50 . 28 0 . 14 . 40	23 . 49 . 15,0 0 . 13 . 27,0	213 . 25 207 . 10	A. B. A. B.	1 . 20 1 . 3 1 . 28 1 . 13	15,9 86,6 14,8 85,1	−1,2 0,0 −1,4 0,0	213 . 27 . 2,2 207 . 12 . 9,8	+6 . 14 . 52,4	C.
Oct. 26	120	Comet ∗ (K). M.	21 . 39 . 0	21 . 37 . 11,2		U.	30,380				−0 . 11 . 19,3	C.
	121	Comet ∗ (K). M.	21 . 48 . 50	21 . 47 . 1,2		U.	30,863				−0 . 11 . 35,5	C.
	122	(*e*) Comet ∗ (K). M.	23 . 4 . 45	23 . 2 . 55,9		U.	36,250				−0 . 14 . 35,4	C.
	123	(*f*) Comet ∗ (L)	2 . 53 . 40	2 . 51 . 50,1	206 . 0 205 . 50	A. A.	2 . 32,6 1 . 31,4	15,3 15,0	−2,4 −1,4	206 . 2 . 45,5 205 . 51 . 45,0	+0 . 11 . 0,5	C.

Graduated face of Declination Circle West. Coincidence of Micrometer L with fixed wire $=9^{r},917$. Coincidence of $U=10^{r},041$. One Micrometer revolution $=33'',400$. Run of Microscope $A=+4'',7$. Run of $B=+0'',2$.

(*a*) The Comet and star at the center of the field: the second set more satisfactory than the first.
(*b*) Bisected by fixed wire as nearly as the faintness of the object would allow. No correction for runs.
(*c*) The micrometer reading was set down 11ʳ,320, and is altered conjecturally.
(*d*) Comet very faint: all the observations of this day doubtful; the bisection of the Comet by the micrometer wire being very uncertain on account of its extreme faintness. The times by Graham are the times of passage of the star across the middle wire.
(*e*) Moon shining and Comet indistinct.
(*f*) The Comet and star were brought in succession to the highest part of the circular boundary of the field.

Day of Observation.	Number of the Series.	Object.	Time of Observation by Graham.	Corresponding Sidereal Time.	Pointer Reading.	Microscope or Micrometer.	Microscope or Micrometer Reading.	Correction for error of Division.	Correction for Runs.	Concluded Reading of Declination Circle.	Apparent excess of N.P.D. of Comet above N.P.D. of ✳.	Observer.
1838.			h. m. s.	h. m. s.	° ′		′ ″ r	″	″	° ′ ″	° ′ ″	
Oct. 29	124	✳ (M)	22 . 14 . 18	22 . 12 . 14,3							−0 . 7 . 7,7	G.
		Comet. M.	22 . 18 . 50	22 . 16 . 46,3		L.	22,722					
	125	Comet	1 . 26 . 57	1 . 24 . 52,6	204 . 15	A.	1 . 20	18,7	−1,2	204 . 17 . 2,9	−0 . 26 . 48,4	C.
						B.	1 . 3	85,2	0,0			
		ι Cephei	1 . 34 . 47	1 . 32 . 42,6	204 . 40	A.	3 . 12	14,7	−3,0	204 . 43 . 51,3		
						B.	2 . 54,4	84,6	−0,1			
Nov. 1	126	Comet	23 . 59 . 50	23 . 57 . 26,6	205 . 10	A.	2 . 38	13,0	−2,5	205 . 13 . 17,1	−0 . 40 . 3,7	C.
						B.	2 . 18	87,7	−0,1			
		6 Cephei	24 . 14 . 45	0 . 12 . 21,6	205 . 50	A.	2 . 38	15,0	−2,5	205 . 53 . 20,8		
						B.	2 . 22	89,1	−0,1			
	127	(*a*) Comet	0 . 30 . 38	0 . 28 . 14,5	205 . 10	A.	3 . 29	13,0	−3,3	205 . 14 . 8,2	−0 . 39 . 16,6	C.
						B.	3 . 10	87,7	−0,1			
		(*b*) 6 Cephei	0 . 46 . 1	0 . 43 . 37,4	205 . 50	A.	2 . 42,5	15,0	−2,5	205 . 53 . 24,8		
						B.	2 . 25,5	89,1	−0,1			
	128	(*c*) Comet	1 . 2 . 10	0 . 59 . 46,3	205 . 10	A.	4 . 38,4	13,0	−4,3	205 . 15 . 15,3	−0 . 38 . 12,4	G.
						B.	4 . 16,0	87,7	−0,2			
		6 Cephei	1 . 20 . 34	1 . 18 . 10,2	205 . 50	A.	2 . 45,0	15,0	−2,6	205 . 53 . 27,7		
						B.	2 . 29,0	89,1	−0,1			
Nov. 2	129	Comet	3 . 35 . 30	3 . 32 . 59,0	206 . 40	A.	0 . 57,8	15,8	−0,9	206 . 41 . 40,5	−0 . 55 . 38,1	G.
						B.	0 . 44,4	83,8	0,0			
		(*d*) θ Cephei			207 . 35	A.	1 . 40,3	15,9	−1,5	207 . 37 . 18,6		
						B.	1 . 17,8	84,7	0,0			
	130	(*c*) Comet	3 . 48 . 45	3 . 46 . 14,0	206 . 40	A.	2 . 16,0	15,8	−2,1	206 . 42 . 53,5	−0 . 54 . 19,9	G.
						B.	1 . 53,5	83,8	−0,1			
		θ Cephei	3 . 53 . 5	3 . 50 . 34,0	207 . 35	A.	1 . 35,8	15,9	−1,5	207 . 37 . 13,4		
						B.	1 . 11,8	84,7	0,0			
	131	Comet	4 . 1 . 18	3 . 58 . 46,9	206 . 40	A.	3 . 31,1	15,8	−3,3	206 . 44 . 5,9	−0 . 53 . 2,3	G.
						B.	3 . 4,5	83,8	−0,1			
		θ Cephei	4 . 4 . 0	4 . 1 . 28,9	207 . 35	A.	1 . 31,3	15,9	−1,4	207 . 37 . 8,2		
						B.	1 . 5,8	84,7	0,0			
	132	(*e*) Comet	4 . 10 . 0	4 . 7 . 28,9	206 . 40	A.	3 . 50,0	15,8	−3,6	206 . 44 . 25,5	−0 . 52 . 38,6	G.
						B.	3 . 25,0	83,8	−0,1			
		θ Cephei	4 . 12 . 52	4 . 10 . 20,9	207 . 35	A.	1 . 27,6	15,9	−1,4	207 . 37 . 4,1		
						B.	1 . 1,3	84,7	0,0			
	133	(*f*) Comet	4 . 18 . 55	4 . 16 . 23,8	206 . 40	A.	4 . 46,0	15,8	−4,5	206 . 45 . 20,5	−0 . 51 . 45,0	G.
						B.	4 . 20,0	83,8	−0,2			
		θ Cephei	4 . 22 . 0	4 . 19 . 28,8	207 . 35	A.	1 . 27,8	15,9	−1,4	207 . 37 . 5,5		
						B.	1 . 4,0	84,7	0,0			

Graduated face of Declination Circle West. Coincidence of Micrometer *L* with fixed wire $= 9^r{,}917$. One Micrometer revolution $= 33''{,}400$. Run of Microscope $A = +4''{,}7$. Run of $B = +0''{,}2$.

(*a*) Extremely faint.

(*b*) The microscope readings were omitted by mistake: in the calculations they are assumed to be the means between those of the preceding and succeeding observations.

(*c*) Comet at comb, star at middle wire.

(*d*) The star was not observed: the microscope readings are inferred from the two succeeding observations.

(*e*) Between the two observations of this set the handle of the declination circle fell from its rest, possibly with some effect on the second observation.

(*f*) The Comet was brighter than on the preceding night.

Day of Observation.	Number of the Series.	Object.	Time of Observation by Graham.	Corresponding Sidereal Time.	Pointer Reading.	Microscope or Micrometer.	Microscope or Micrometer Reading.	Correction for error of Division.	Correction for Runs.	Concluded Reading of Declination Circle.	Apparent excess of N.P.D. of Comet above N.P.D. of ⚹.	Observer.
1838.			h. m. s.	h. m. s.	° ′		′ ″ r	″	″	° ′ ″	° ′ ″	
Nov. 7	134	Comet	22 . 2 . 0	21 . 56 . 58,1							+0 . 5 . 48,7	G.
		⚹ (O). M.	22 . 2 . 35	21 . 57 . 33,1		L.	20,358					
	135	Comet	22 . 6 . 0	22 . 0 . 58,1							+0 . 6 . 18,9	G.
		⚹ (O). M.	22 . 6 . 34	22 . 1 . 32,1		L.	21,260					
	136	Comet	22 . 10 . 39	22 . 5 . 37,1	218 . 30	A.	1 . 44,8	8,8	– 1,6	218 . 32 . 18,3	+ 3 . 50 . 9,0	G.
						B.	1 . 19,2	85,4	– 0,1			
		C Draconis	22 . 19 . 58	22 . 14 . 56,1	214 . 40	A.	1 . 30,0	16,3	– 1,4	214 . 42 . 9,3		
						B.	1 . 5,3	88,3	0,0			
	137	Comet	1 . 45 . 14	1 . 40 . 11,2	218 . 55	A.	4 . 32,6	8,9	– 4,3	219 . 0 . 3,9	+ 4 . 17 . 56,4	G.
						B.	4 . 1,8	89,0	– 0,2			
		C Draconis	1 . 57 . 4	1 . 52 . 1,2	214 . 40	A.	1 . 29,8	16,3	– 1,4	214 . 42 . 7,5		
						B.	1 . 2,0	88,3	0,0			
	138	Comet	2 . 13 . 18	2 . 8 . 15,1	219 . 0	A.	3 . 5,2	10,8	– 2,9	219 . 3 . 36,2	+ 4 . 22 . 5,2	G.
						B.	2 . 34,6	84,8	– 0,1			
		(*a*) C Draconis	2 . 25 . 32	2 . 20 . 29,1	214 . 40	A.	0 . 53,2	16,3	– 0,8	214 . 41 . 31,0		
						B.	0 . 25,0	88,3	0,0			
Nov. 9	139	γ Draconis	21 . 42 . 12	21 . 36 . 59,3	218 . 30	A.	3 . 45,7	8,8	– 3,6	218 . 34 . 19,0	+ 6 . 22 . 4,0	G.
						B.	3 . 21,8	85,4	– 0,1			
		(*b*) Comet	21 . 49 . 30	21 . 44 . 17,3	224 . 55	A.	0 . 50,3	7,9	– 0,8	224 . 56 . 23,0		
						B.	0 . 19,2	89,4	0,0			
	140	γ Draconis	21 . 53 . 30	21 . 48 . 17,2	218 . 30	A.	3 . 45,8	8,8	– 3,6	218 . 34 . 18,1	+ 6 . 23 . 48,1	G.
						B.	3 . 19,8	85,4	– 0,1			
		(*c*) Comet	22 . 0 . 40	21 . 55 . 27,2	224 . 55	A.	2 . 33,6	7,9	– 2,4	224 . 58 . 6,2		
						B.	2 . 3,9	89,4	– 0,1			
Nov. 10	141	Comet	21 . 12 . 5	21 . 6 . 46,4	228 . 5	A.	4 . 37,8	4,7	– 4,3	228 . 10 . 7,6	– 4 . 38 . 11,1	G.
						B.	4 . 7,2	90,0	– 0,2			
		(*d*) θ Herculis	21 . 15 . 7	21 . 9 . 48,4	232 . 45	A.	2 . 50,4	4,7	– 2,7	232 . 48 . 18,7		
						B.	2 . 31,1	74,0	– 0,1			
	142	(*e*) Comet	21 . 19 . 22	21 . 14 . 3,3	228 . 5	A.	5 . 13,5	4,7	+ 0,2	228 . 10 . 49,2	– 4 . 37 . 23,7	G.
						B.	4 . 50,0	90,0	0,0			
		θ Herculis	21 . 22 . 18	21 . 16 . 59,3	232 . 45	A.	2 . 42,5	4,7	– 2,6	232 . 48 . 12,9		
						B.	2 . 27,2	74,0	– 0,1			
	143	Comet	21 . 26 . 13	21 . 20 . 54,3	228 . 10	A.	1 . 16,8	6,2	– 1,2	228 . 11 . 50,0	– 4 . 36 . 19,3	G.
						B.	0 . 48,0	90,1	0,0			
		θ Herculis	21 . 29 . 21	21 . 24 . 2,3	232 . 45	A.	2 . 39,5	4,7	– 2,5	232 . 48 . 9,3		
						B.	2 . 23,0	74,0	– 0,1			
	144	(*f*) Comet	21 . 33 . 10	21 . 27 . 51,3	228 . 10	A.	2 . 1,0	6,2	– 1,9	228 . 12 . 32,7	– 4 . 35 . 37,3	G.
						B.	1 . 30,0	90,1	– 0,1			
		θ Herculis	21 . 36 . 10	21 . 30 . 51,3	232 . 45	A.	2 . 39,8	4,7	– 2,5	232 . 48 . 10,0		
						B.	2 . 24,0	74,0	– 0,1			

Graduated Face of Declination Circle West. Coincidence of Micrometer *L* with fixed wire = 9r,917. One Micrometer revolution = 33″,400. Run of Microscope *A* = + 4″,7. Run of *B* = + 0″,2.

(*a*) Bisection of star good. The Comet remarkably bright.
(*b*) Unsatisfactory. (*c*) Better than the preceding Comet observation.
(*d*) Lamp-light bad.
(*e*) Observation of the Comet unsatisfactory. No correction for Runs.
(*f*) The Comet very ill-defined during the observations of this night.

Day of Observation.	Number of the Series.	Object.	Time of Observation by Graham.	Corresponding Sidereal Time.	Pointer Reading.	Microscope or Micrometer.	Microscope or Micrometer Reading.	Correction for error of Division.	Correction for Runs.	Concluded Reading of Declination Circle.	Apparent excess of N.P.D. of Comet above N.P.D. of ∗.	Observer.
1838.			h. m. s.	h. m. s.	° ′		′ ″ r	″	″	° ′ ″	° ′ ″	
Nov. 12	145	(a) Comet	0.33.35	0.28. 0,4	235. 0	A.	5.20,8	7,6	+ 0,3	235. 5.52,4	0. 0. 0,0	G.
		∗ (E)				B.	4.39,3	96,8	0,0			
	146	ρ Herculis	0.37.10	0.31.35,4	232.40	A.	5. 4,0	4,5	- 4,7	232.45.28,7	+ 2.21.44,3	G.
						B.	4.39,4	74,3	- 0,2			
		Comet	0.44.56	0.39.21,4	235. 5	A.	1.48,1	4,4	- 1,7	235. 7.13,0		
						B.	1. 1,1	94,2	0,0			
	147	ρ Herculis	1.20.38	1.15. 3,2	232.40	A.	4. 3,0	4,5	- 3,8	232.44.26,5	+ 2.27.49,3	G.
						B.	3.35,1	74,3	- 0,1			
		Comet	1.28.21	1.22.46,2	235.10	A.	1.48,4	5,7	- 1,7	235.12.15,8		
						B.	1. 3,0	96,2	0,0			
	148	(b) ρ Herculis	1.32.55	1.27.20,1	232.40	A.	3.43,8	4,5	- 4,5	232.44. 8,4	+ 2.28.56,3	G.
						B.	3.18,8	74,3	- 0,2			
		Comet	1.40.36	1.35. 1,1	235.10	A.	2.38,6	5,7	- 2,5	235.13. 4,7		
						B.	1.51,4	96,2	- 0,1			
Nov. 13	149	(c) Comet	22.22.53	22.17.13,5	237.55	A.	2.43,4	7,3	- 2,6	237.58.10,3	+ 5.11.37,0	G.
						B.	2. 0,0	92,5	- 0,1			
		ρ Herculis	22.23.55	22.18.15,5	232.45	A.	1. 4,8	4,7	- 1,0	232.46.33,3		
						B.	0.44,0	74,0	0,0			
	150	(d) Comet	22.26.55	22.21.15,5	237.55	A.	3.36,3	7,3	- 3,5	237.59. 3,0	+ 5.12.34,6	G.
						B.	2.53,4	92,5	- 0,1			
		ρ Herculis	22.27.41	22.22. 1,5	232.45	A.	0.59,7	4,7	- 0,9	232.46.28,4		
						B.	0.39,2	74,0	0,0			
	151	(d) Comet	22.30.32	22.24.52,5	237.55	A.	4.22,0	7,3	- 4,1	237.59.50,0	+ 5.13.19,5	G.
						B.	3.42,4	92,5	- 0,2			
		ρ Herculis	22.31.17	22.25.37,5	232.45	A.	1. 3,0	4,7	- 1,0	232.46.30,5		
						B.	0.40,2	74,0	0,0			
Nov. 14	152	(c) Comet	21.13.56	21.14.12,2	240.50	A.	1.29,8	9,5	- 1,4	240.52. 2,7	- 4.32.24,9	G.
						B.	0.52,5	94,9	0,0			
		a Herculis	21.17. 8	21.17.24,2	245.20	A.	3.58,5	14,3	- 3,8	245.24.27,6		
						B.	3.24,2	82,1	- 0,1			
	153	Comet	21.19.57	21.20.13,1	240.50	A.	2.19,0	9,5	- 2,2	240.52.51,0	- 4.31.41,3	G.
						B.	1.40,8	94,9	- 0,1			
		a Herculis	21.23. 5	21.23.21,1	245.20	A.	4. 4,0	14,3	- 3,8	245.24.32,3		
						B.	3.28,0	82,1	- 0,1			
	154	(f) Comet	21.28.20	21.28.36,1	240.50	A.	3.23,8	9,5	- 3,2	240.53.54,9	- 4.30.31,6	G.
						B.	2.44,8	94,9	- 0,1			
		a Herculis	21.31.30	21.31.46,1	245.20	A.	4. 0,0	14,3	- 3,8	245.24.26,5		
						B.	3.20,5	82,1	- 0,1			

Graduated Face of Declination Circle West. Run of Microscope $A = +4'',7$. Run of $B = +0'',2$.

(a) Comet and star apparently coincident. No correction for Runs. For notes on the observations of this and following days, see the observations of differences of R.A.
(b) Lamp-light very feeble. The minutes of the micrometer reading were written down 4, evidently by mistake.
(c) Comet at comb, star at 5th wire.
(d) Comet at comb, star at middle wire.
(e) This night's observations of the Comet pretty good.
(f) Pointer reading written down 240.40.

Day of Observation.	Number of the Series.	Object.	Time of Observation by Graham.	Corresponding Sidereal Time.	Pointer Reading.	Microscope or Micrometer.	Microscope or Micrometer Reading.	Correction for error of Division.	Correction for Runs.	Concluded Reading of Declination Circle.	Apparent excess of N.P.D. of Comet above N.P.D. of ✳.	Observer.
1838.			h. m. s.	h. m. s.	° ′		′ ″ r	″	″	° ′ ″	° ′ ″	
Nov. 22	155	Comet	21 . 51 . 54	21 . 51 . 18,4	260 . 25	A.	3 . 48,0	34,7	- 3,6	260 . 29 . 44,7	- 0 . 39 . 38,6	G.
						B.	3 . 53,3	77,1	- 0,2			
		i Herculis	21 . 59 . 37	21 . 59 . 1,4	261 . 5	A.	3 . 28,0	32,0	- 3,3	261 . 9 . 23,3		
						B.	3 . 33,2	76,8	- 0,1			
	156	Comet	22 . 4 . 33	22 . 3 . 57,3	260 . 25	A.	4 . 13,0	34,7	- 3,9	260 . 30 . 8,3	- 0 . 38 . 49,7	G.
						B.	4 . 15,8	77,1	- 0,2			
		i Herculis	22 . 12 . 22	22 . 11 . 46,3	261 . 5	A.	3 . 4,0	32,0	-2,9	261 . 8 . 58,0		
						B.	3 . 6,2	76,8	- 0,1			
	157	(*a*) Comet	22 . 30 . 40	22 . 30 . 4,2	260 . 25	A.	5 . 3,8	34,7	- 4,7	260 . 30 . 58,0	- 0 . 35 . 51,5	G.
						B.	5 . 5,2	77,1	- 0,2			
		i Herculis	22 . 39 . 47	22 . 39 . 11,2	261 . 5	A.	0 . 52,2	32,0	- 0,8	261 . 6 . 49,5		
						B.	0 . 58,8	76,8	0,0			
Nov. 24	158	Comet	21 . 42 . 27	21 . 41 . 37,2	264 . 5	A.	3 . 59,0	34,1	- 3,8	264 . 9 . 54,6	+ 1 . 34 . 19,1	G.
						B.	4 . 1,0	79,0	- 0,2			
		(*b*) 33 Herculis	21 . 47 . 50	21 . 47 . 0,2	262 . 30	A.	4 . 39,4	33,8	- 4,4	262 . 35 . 35,5		
						B.	4 . 43,3	79,1	- 0,2			
	159	Comet	21 . 51 . 23	21 . 50 . 33,2	264 . 5	A.	4 . 13,2	34,1	- 3,9	264 . 10 . 8,7	+ 1 . 34 . 52,9	G.
						B.	4 . 15,2	79,0	- 0,2			
		33 Her.	21 . 56 . 49	21 . 55 . 59,2	262 . 30	A.	4 . 10,5	33,8	- 3,9	262 . 35 . 5,8		
						B.	4 . 10,5	80,9	- 0,2			
	160	Comet *n* Herculis M.	22 . 0 . 22 22 . 1 . 24	21 . 59 . 32,1 22 . 0 . 34,1		L.	13,039				+ 0 . 1 . 44,3	G.
	161	Comet *n* Her. M.	22 . 3 . 37 22 . 4 . 39	22 . 2 . 47,1 22 . 3 . 49,1		L.	13,223				+ 0 . 1 . 50,4	G.
	162	Comet *n* Her. M.	22 . 6 . 14 22 . 7 . 18	22 . 5 . 24,1 22 . 6 . 28,1		L.	13,988				+ 0 . 2 . 16,0	G.
	163	Comet *n* Her. M.	22 . 8 . 45 22 . 9 . 49	22 . 7 . 55,1 22 . 8 . 59,1		L.	14,392				+ 0 . 2 . 29,5	G.
	164	(*c*) Comet *n* Her. M.	22 . 11 . 4 22 . 12 . 10	22 . 10 . 14,1 22 . 11 . 20,1		L.	14,815				+ 0 . 2 . 43,6	G.

Graduated Face of Declination Circle West. Coincidence of Micrometer *L* with fixed wire $= 9^r,917$. One Micrometer revolution $= 33'',400$. Run of Microscope $A = +4'',7$. Run of $B = +0'',2$.

(*a*) Comet at comb, star at 5th wire.
(*b*) Not good.
(*c*) The Comet was faint during the observations of this evening, and its apparent size much diminished.

⁂ In the following sets, the Equatoreal was moved about its Polar axis in the intervals between the observations of the Comet and Star. The hour angles being known from the known Right Ascensions of the Stars and the approximate right ascension of the Comet, the change of index error was inferred by subsequently replacing the Telescope nearly in the same positions and reading off the Microscopes.

Day of Observation.	Number of the Series.	Object.	Time of Observation by Graham.	Corresponding Sidereal Time.	Pointer Reading.	Microscope or Micrometer.	Microscope or Micrometer Reading.	Correction for error of Division.	Correction for Runs.	Concluded Reading of Declination Circle.	Apparent excess of N.P.D. of Comet above N.P.D. of ✳.	Observer.
1838.			h. m. s.	h. m. s.	° ′		′ ″ / r	″	″	° ′ ″	° ′ ″	
Nov. 9	165	(*a*) ✳ (C)	0.18.43	0.13.29,6	224.20	A.	2.32,0	6,1	- 2,4	224.23. 8,0	+0.59. 0,0	C.
						B.	1.58,0	92,3	- 0,1			
		(*b*) Comet	0.59.15	0.54. 1,5	225.20	A.	1.35,8	7,5	- 1,5	225.22. 8,0		G.
						B.	1. 1,2	93,1	0,0			
Nov. 22	166	(*c*) Comet	21.23. 6	21.22.30,5	260.25	A.	2.46,3	34,7	- 2,6	260.28.42,1	+0.51.35,4	C.
						B.	2.48,7	77,1	- 0,1			
		ι Ophiuchi	21.45.37	21.45. 1,4	259.35	A.	1. 9,0	32,3	- 1,1	259.37. 6,7		
						B.	1.16,0	77,2	- 0,1			
	167	(*d*) Comet	21.29.40	21.29. 4,5	260.25	A.	3.10,0	34,7	- 3,0	260.29. 4,3	+0.51.57,6	C.
						B.	3. 9,8	77,1	- 0,1			
		ι Ophiuchi	21.45.37	21.45. 1,4	259.35	A.	1. 9,0	32,3	- 1,1	259.37. 6,7		
						B.	1.16,0	77,2	- 0,1			

Graduated Face of Declination Circle West. Run of Microscope *A* = + 4″,7. Run of *B* = + 0″,2.

(*a*) Star at middle wire, Comet at comb. Interval = $1^m.12^s$. Hour angle West for Star = $6^h.13^m$; for Comet = $6^h.55^m$. Correction applied to Circle reading for Star for change of index error = + 5″,0.

(*b*) Good observation. Cloudy immediately after.

(*c*) Hour angle West for Comet = $4^h.52^m$; for Star = $4^h.58^m$. No sensible correction for change of index error.

(*d*) Hour angle West for Comet = $4^h.59^m$; for Star = $4^h.58^m$. No correction for change of index error.

THE *following* OBSERVATIONS *of the* COMET *were taken with the* MERIDIONAL INSTRUMENTS.

I. OBSERVATIONS OF RIGHT ASCENSION.

With the Mural Circle.

Day of Observation.	Number of the Series.	Position of Comet in field of view of Telescope when observed.	Time of Observation by Molyneux.	Time by Hardy.	Sidereal Time.	Sidereal Interval to Middle Wire.	Interval from Middle Wire to Meridian.	Apparent R.A. at the time of Observation.	Observer.
1838.			*h. m. s.*	*h. m. s.*	*h. m. s.*	*m. s.*	*s.*	*h. m. s.*	
Oct. 4	168	At Edge of Comb	2 . 23 . 41	2 . 23 . 39	2 . 24 . 28,9	- 1 . 5,0	- 3,92	2 . 23 . 19,98	G.
17	169	Entering	1 . 38 . 12	1 . 38 . 5	1 . 39 . 4,4	+ 2 . 3,3	- 5,06	1 . 41 . 2,64	G.
17	170	Departing	1 . 42 . 30	1 . 42 . 23	1 . 43 . 22,4	- 2 . 11,7	- 5,06	1 . 41 . 5,64	G.
20	171	At Edge of Comb	1 . 19 . 40	1 . 20 . 35	1 . 20 . 36,6	- 1 . 27,7	- 5,52	1 . 19 . 3,38	G.
26	172	At Edge of Comb*	23 . 55 . 30	23 . 56 . 21	23 . 56 . 27,5	- 1 . 49,1	- 6,92	23 . 54 . 31,48	G.
29	173	At Middle Wire	22 . 38 . 34	22 . 39 . 24	22 . 39 . 32,6		- 7,49	22 . 39 . 25,11	G.
29	174	At Edge of Comb	22 . 40 . 25	22 . 41 . 15	22 . 41 . 23,6	- 1 . 58,4	- 7,49	22 . 39 . 17,71	G.

* A Star (*P*) preceded the Comet 10^s.

With the Transit.

Oct. 29	175	Departing		22 . 43 . 28	22 . 43 . 36,6	- 4 . 27,0	+ 0,26	22 . 39 . 9,86	G.

The observations at the Comb of the Circle were taken at the toothed edge, the Equatoreal Interval of which from the middle wire = $48^s,3$.

Equatoreal Interval of Entrance from middle wire = 74^s.

Equatoreal Interval of Departure from middle wire = 79^s.

The Interval of Departure from the middle wire of the Transit for a Star of the same N.P.D. as the Comet was found by observation soon after that of the Comet to be $4^m. 27^s$.

By comparisons near the times of observation Molyneux was fast on Hardy, 2^s on Oct. 4, 7^s on Oct. 17, and slow on Hardy, 55^s Oct. 20, 51^s Oct. 26, and 50^s Oct. 29.

II. OBSERVATIONS OF NORTH POLAR DISTANCE.

With the Mural Circle.

Day of Obser-vation.	Number of the Series.	Pointer Reading.	Microscopes.						Micrometer Reading.	Correction for Micrometer.	Concluded Reading of Circle.	Apparent N.P.D. of Comet uncorrected.	Observer.
			A	*B*	*C*	*D*	*E*	*F*					
1838.		° ′	′ ″	″	″	″	″	″	r	′ ″	° ′ ″	° ′ ″	
Oct. 4	176	346 . 50	0 . 30,0						12,500	− 0 . 50	346 . 49 . 40	47 . 57 . 46,3	G.
17	177	335 . 45	2 . 30,0								335 . 47 . 30	36 . 55 . 37,3	G.
20	178	332 . 20	4 . 20,0								332 . 24 . 20	33 . 32 . 27,3	G.
26	179*	325 . 15	1 . 49,3	54,0	52,6	49,8	50,0	49,3			325 . 16 . 50,9	26 . 24 . 58,1	G.
29	180	323 . 5	1 . 3,2	4,3	4,7	2,8	1,2	3,8			323 . 6 . 3,4	24 . 14 . 10,6	G.

* Micrometer Reading for the accompanying Star (*P*) = $20^{r},074$.

The Micrometer Reading Oct. 4 is merely a rough estimation, the faintness of the object admitting of nothing better. The observation of Oct. 17 is very doubtful; the center of the field was guessed at.

Adopted *Zenith* Point = 336°. 39′. 1″.

Oct. 26. Barometer Reading, $\overset{in.}{29,840}$. Free Thermometer, $\overset{\circ}{46,6}$.

Oct. 29. Barometer Reading, 29,540. Free Thermometer, 45,2.

The Sidereal Times of the above observations may be taken from the observations of Æ with the Circle on the same days. That of Oct. 17 is considered to be the mean of the times of entering and departing.

Assumed MEAN RIGHT ASCENSIONS *and* NORTH POLAR DISTANCES, *Jan.* 1, 1838, *of the* STARS *observed with* ENCKE'S COMET.

Star's Name.	Assumed Mean Right Ascension, Jan. 1, 1838.	Assumed Mean North Polar Distance, Jan. 1, 1838.	Star's Name.	Assumed Mean Right Ascension, Jan. 1, 1838.	Assumed Mean North Polar Distance, Jan. 1, 1838.
	h. m. s.	° ′ ″		*h. m. s.*	° ′ ″
* (A)	1 . 17 . 47,16	33 . 32 . 46,00	θ Herculis	17 . 50 . 41,97	52 . 43 . 24,87
* (I)	1 . 41 . 56,86	36 . 54 . 14,17	γ Draconis	17 . 52 . 50,89	38 . 29 . 20,75
ε Cassiopeiæ	1 . 42 . 49,12	27 . 7 . 53,42	* (C)	18 . 0 . 28,35	44 . 18 . 27,50
θ Persei	2 . 33 . 9,92	41 . 27 . 43,13	* (O)	18 . 30 . 45,41	38 . 20 . 39,10
n Herculis	16 . 24 . 37,69	84 . 7 . 40,94	C Draconis	18 . 39 . 29,18	34 . 37 . 16,63
33 Herculis	16 . 28 . 59,17	82 . 33 . 22,60	* (Q)	20 . 24 . 7,99	26 . 38 . 10,01
* (H)	16 . 30 . 12,81	80 . 11 . 18,29	θ Cephei	20 . 26 . 51,46	27 . 32 . 57,09
i Herculis	16 . 38 . 3,52	81 . 7 . 0,33	* (N)	21 . 2 . 38,14	25 . 2 . 15,06*
ι Ophiuchi	16 . 46 . 20,59*	79 . 33 . 44,92	6 Cephei	21 . 15 . 59,98	25 . 48 . 49,79
* (G)	17 . 12 . 27,71	61 . 0 . 11,38	* (B)	22 . 33 . 37,17	24 . 11 . 5,67
α Herculis	17 . 14 . 14,10	65 . 20 . 2,88	* (M)	22 . 35 . 22,06	24 . 20 . 20,16
ρ Herculis	17 . 18 . 5,93	52 . 42 . 2,92	ι Cephei	22 . 43 . 55,90	24 . 39 . 1,99
* (F)	17 . 18 . 38,78	57 . 10 . 47,39	* (P)	23 . 54 . 12,03	26 . 21 . 49,17
* (E)	17 . 26 . 5,11	55 . 3 . 25,12	* (L)	23 . 56 . 51,23	26 . 7 . 15,49
* (D)	17 . 46 . 28,79	48 . 15 . 50,93	* (K)	23 . 58 . 4,41	26 . 42 . 21,13

* The R.A. of ι Ophiuchi and the N.P.D. of * (N) are not required in the subsequent calculations.

GEOCENTRIC RIGHT ASCENSIONS

AND

NORTH POLAR DISTANCES

OF

ENCKE'S COMET,

DEDUCED FROM THE FOREGOING OBSERVATIONS,

AND

COMPARED WITH THE PLACES INTERPOLATED FROM
ENCKE'S EPHEMERIS.

1838.

GEOCENTRIC RIGHT ASCENSIONS *of* ENCKE'S COMET *deduced from the foregoing* OBSERVATIONS, *with the* GREENWICH MEAN SOLAR TIMES *of* OBSERVATION.

No. of the Series.	Greenwich Mean Solar Time of Observation of the Comet.	Hour angle of the Comet East of the Meridian.	Correction for Parallax.	Correction for Refraction.	Concluded Excess of R.A. of Comet above R.A. of ⚹.	Assumed Right Ascension of ⚹.	Concluded R.A. of Comet by observation.	Minutes and Seconds of Tabular R.A.	Error of Tables in Time.
	d. h. m. s.	*h. m.*	*s.*	*s.*	*m. s.*	*h. m. s.*	*h. m. s.*	*m. s.*	*m. s.*
168	Oct. 4.13.30.57,1	−0. 1	0,00	0,00			2.23.19,98	23.14,45	(−0. 5,53)
51	4.13.56.24,0	−0.25	+0,08	+0,04	−7.59,88	2.33.13,99	2.25.14,11	23.12,89	(−2. 1,22)
52	4.14.37. 7,3	−1. 6	+0,22	+0,10	−7.39,68	....	2.25.34,31	23.10,38	(−2.23,93)
53	17. 9.28.20,6	+2.29	−0,89	+0,20	−51.24,49	2.33.14,29	1.41.49,80	42.11,95	+0.22,15
169	17.11.54.33,2	+0. 2	0,00	0,00			1.41. 2,64	41.34,58	+0.31,94
170	17.11.58.50,5	−0. 2	0,00	0,00			1.41. 5,64	41.33,48	+0.27,84
54	17.13.32.34,5	−1.36	+0,60	0,00	−1. 2,40	1.42. 1,10	1.40.58,70	41. 9,26	+0.10,56
55	17.13.34.55,2	−1.39	+0,61	0,00	−1.11,39	....	1.40.49,71	41. 8,65	+0.18,94
56	17.13.45.13,5	−1.49	+0,68	0,00	−1.17,32	....	1.40.43,78	41. 5,98	+0.22,20
57	17.13.50. 4,7	−1.54	+0,72	0,00	−1.17,28	....	1.40.43,82	41. 4,72	+0.20,90
58	17.13.52.22,3	−1.57	+0,73	0,00	−1.19,27	....	1.40.41,83	41. 4,12	+0.22,29
59	20. 9.53.14,2	+1.30	−0,69	−0,37	−24.13,06	1.42.53,99	1.18.40,93	19.45,83	(+1. 4,90)
171	20.11.24.20,7	−0. 1	0,00	0,00			1.19. 3,38	19.11,48	+0. 8,10
1	20.11.48.42,5	−0.27	+0,21	+0,06	−0. 2,73	1.17.51,40	1.17.48,67	19. 2,25	(+1.15,58)
60	26. 6.45.18,9	+2.51	−1,86	+0,02	−1.27,84	23.58. 7,84	23.56.40,00	57. 4,35	+0.24,35
61	26. 6.50.37,1	+2.47	−1,82	+0,02	−1.16,80	....	23.56.51,04	56.59,72	+0. 8,68
62	26. 6.55.47,2	+2.42	−1,78	+0,02	−1.14,76	....	23.56.53,08	56.55,21	+0. 2,13
63	26. 6.59.59,6	+2.38	−1,75	+0,02	−1.15,73	....	23.56.52,11	56.51,53	−0. 0,58
64	26. 8.13.35,1	+1.23	−0,97	+0,02	−2.16,95	....	23.55.50,89	55.47,01	−0. 3,88
65	26. 8.22.27,7	+1.14	−0,87	+0,01	−2.28,86	....	23.55.38,98	55.39,19	+0. 0,21
66	26. 8.29. 0,5	+1. 7	−0,79	+0,01	−2.27,78	....	23.55.40,06	55.33,43	−0. 6,63
172	26. 9.36.50,0	−0. 2	0,00	0,00			23.54.31,48	54.33,45	+0. 1,97
		0. 2	0,00	0,00	+0.10, 0	23.54.15,41	23.54.25,41		+0. 8,04
67	26.12.21. 3,6	−2.49	+1,89	+0,03	−4.51,98	23.56.54,66	23.52. 2,68	52. 6,58	+0. 3,90
68	29. 7.43.32,7	+0.25	−0,35	0,00	+4.24,65	22.35.23,93	22.39.48,58	39.12,36	−0.36,22
69	29. 7.45.37,4	+0.23	−0,32	0,00	+4.31,68	....	22.39.55,61	39. 9,76	−0.45,85
173	29. 8. 8.19,9	0. 0	0,00	0,00			22.39.25,11	38.41,23	−0.43,88
174	29. 8.10.10,6	−0. 2	0,00	0,00			22.39.17,71	38.38,91	−0.38,80
175	29. 8.12.23,3	−0. 4	0,00	0,00			22.39. 9,86	38.36,13	−0.33,73
70	29.10.53.13,0	−2.49	+2,25	−0,08	−7.47,83	22.43.57,93	22.36.10,10	35.12,94	−0.57,16
2	29.12. 2.11,1	−4. 0	+2,90	+0,07	+0.48,87	22.33.39,00	22.34.27,87	33.45,24	−0.42,63
3	29.12.10.34,7	−4. 8	+2,95	+0,07	+0.33,92	....	22.34.12,92	33.34,54	−0.38,38
4	29.12.24.45,3	−4.23	+3,04	+0,06	+0.23,00	....	22.34. 2,00	33.16,46	−0.45,54
5	29.12.30. 3,4	−4.28	+3,08	+0,06	+0.15,04	....	22.33.54,04	33. 9,70	−0.44,34
6	29.12.35.35,6	−4.34	+3,12	0,00	+0. 3,12	....	22.33.42,12	33. 2,63	−0.39,49
7	Oct. 29.12.41.57,5	−4.40	+3,15	−0,25	−10.20,20	22.43.57,93	22.33.37,73	32.54,50	−0.43,23

No. of the Series.	Greenwich Mean Solar Time of Observation of the Comet.	Hour angle of the Comet East of the Meridian.	Correction for Parallax.	Correction for Refraction.	Concluded Excess of R.A. of Comet above R.A. of *.	Assumed Right Ascension of *.	Concluded R.A. of Comet by observation.	Minutes and Seconds of Tabular R.A.	Error of Tables in Time.
	d. h. m. s.	h. m.	s.	s.	m. s.	h. m. s.	h. m. s.	m. s.	m. s.
71	Nov. 1. 7.40.12,3	-1.20	+1,20	0,00	+0.39,20	21. 2.38,27	21. 3.17,47	1.50,06	-1.27,41
72	1. 7.44.16,6	-1.24	+1,25	0,00	+0.34,25	....	21. 3.12,52	1.44,47	-1.28,05
73	1. 7.46.16,2	-1.26	+1,27	0,00	+0.19,27	....	21. 2.57,54	1.41,73	-1.15,81
74	1. 9.14.13,4	-2.56	+2,43	-0,10	-14.48,57	21.16. 0,40	20.61.11,83	59.41,04	-1.30,79
75	1. 9.44.56,3	-3.28	+2,73	-0,11	-15.21,28	....	20.60.39,12	58.58,95	-1.40,17
76	1.10.16.22,9	-4. 0	+3,03	-0,12	-16.25,99	....	20.59.34,41	58.15,89	-1.18,52
77	2.12.58.27,5	-7.22	+3,19	-0,13	-2.28,94	20.26.51,28	20.24.22,34	22.41,36	-1.40,98
78	2.13.10.58,3	-7.34	+3,11	-0,12	-2.39,01	....	20.24.12,27	22.25,27	-1.47,00
79	2.13.19.38,9	-7.43	+3,05	-0,11	-2.49,06	....	20.24. 2,22	22.14,12	-1.48,10
80	2.13.28.32,3	-7.52	+3,00	-0,10	-3. 2,10	....	20.23.49,18	22. 2,70	-1.46,48
81	7. 6.50.29,2	-3.27	+2,02	+0,01	-0.32,97	18.30.45,09	18.30.12,12	28.32,90	-1.39,22
82	7. 6.54.28,5	-3.31	+2,04	+0,01	-0.31,95	....	18.30.13,14	28.30,02	-1.43,12
83	7. 6.59. 6,8	-3.35	+2,07	+0,27	-9.16,66	18.39.28,57	18.30.11,91	28.26,67	-1.45,24
84	7.10.33. 5,8	-7.12	+2,42	+0,06	-11.47,52	....	18.27.41,05	25.53,87	-1.47,18
85	7.11. 1. 5,1	-7.40	+2,30	-0,06	-12.11,76	....	18.27.16,81	25.34,13	-1.42,68
86	9. 6.29.58,7	-3.44	+1,86	-0,32	+7.19,54	17.52.50,41	18. 0. 9,95	58.30,25	-1.39,70
87	9. 6.41. 6,7	-3.55	+1,91	-0,32	+7.11,59	....	18. 0. 2,00	58.24,15	-1.37,85
8	9. 6.55.18,6	-4.10	+1,98	+0,09	-0.24,33	18. 0.28,32	18. 0. 3,99	58.16,39	-1.47,60
9	9. 7.11.12,1	-4.26	+2,04	+0,10	-0.34,66	....	17.59.53,66	58. 7,71	-1.45,95
10	9. 7.23.26,1	-4.38	+2,09	+0,08	-0.37,93	....	17.59.50,39	58. 1,03	-1.49,36
88	10. 5.48.38,0	-3.19	+1,60	-0,09	-3. 0,49	17.50.42,37	17.47.41,88	46.31,75	-1.10,13
89	10. 5.55.53,7	-3.26	+1,64	-0,09	-2.54,45	....	17.47.47,92	46.28,25	-1.19,67
90	10. 6. 2.43,6	-3.33	+1,68	-0,09	-3. 6,41	....	17.47.35,96	46.24,96	-1.11,00
91	10. 6. 9.39,5	-3.40	+1,72	-0,09	-2.58,37	....	17.47.44,00	46.21,63	-1.22,37
11	10. 7.43. 5,7	-5.15	+2,05	-0,09	+0.28,36	17.46. 6,17	17.46.57,15	45.36,93	-1.20,22
12	10. 7.51.44,4	-5.23	+2,06	-0,04	+0.25,52	....	17.46.54,31	45.32,81	-1.21,50
13	10. 8. 1.58,7	-5.34	+1,99	-0,05	+0.22,24	....	17.46.51,03	45.27,94	-1.23,09
14	12. 8.29.22,4	-6.30	+1,81	-0,04	+0.14,72	17.26. 5,55	17.26.20,27	25. 7,25	-1.13,02
15	12. 8.31.36,0	-6.32	+1,81	-0,04	+0.12,62	....	17.26.18,17	25. 6,42	-1.11,75
16	12. 8.33.25,7	-6.34	+1,81	-0,03	+0.12,54	....	17.26.18,09	25. 5,75	-1.12,34
17	12. 8.34.58,4	-6.36	+1,80	-0,04	+0.15,62	....	17.26.21,17	25. 5,18	-1.15,99
92	12. 9. 1.27,2	-7. 2	+1,76	0,00	+0. 1,76	....	17.26. 7,31	24.55,39	-1.11,92
93	12. 9.12.46,3	-7.14	+1,73	-0,64	+7.47,09	17.18. 6,26	17.25.53,35	24.51,21	-1. 2,14*
94	12. 9.56. 4,1	-7.57	+1,58	-1,40	+7.43,18	....	17.25.49,44	24.35,27	-1.14,17
95	Nov. 12.10. 8.17,0	-8. 9	+1,54	-1,74	+7.40,80	....	17.25.47,06	24.30,78	-1.16,28

* Probably an error of 10^s in counting, as the observations of this day were made under very favorable circumstances.

No. of the Series.	Greenwich Mean Solar Time of Observation of the Comet.	Hour angle of the Comet East of the Meridian.	Correction for Parallax.	Correction for Refraction.	Concluded Excess of R.A. of Comet above R.A. of ⚹.	Assumed Right Ascension of ⚹.	Concluded R.A. of Comet by observation.	Minutes and Seconds of Tabular R.A.	Error of Tables in Time.
	d. h. m. s.	h. m.	s.	s.	m. s.	h. m. s.	h. m. s.	m. s.	m. s.
18	Nov. 13. 6. 1.28,9	−4.12	+1,54	+0,17	+0. 4,91	17.18.39,30	17.18.44,21	17.33,01	−1.11,20
19	13. 6.13.42,0	−4.25	+1,58	+0,03	−0. 1,19	....	17.18.38,11	17.28,94	−1. 9,17
20	13. 6.20.23,9	−4.31	+1,60	+0,05	−0. 1,55	....	17.18.37,75	17.26,70	−1.11,05
21	13. 6.25.39,1	−4.37	+1,62	+0,03	−0. 4,15	....	17.18.35,15	17.24,95	−1.10,20
96	13. 6.47. 5,8	−4.59	+1,66	−0,11	+0.28,55	17.18. 6,24	17.18.34,79	17.17,81	−1.16,98
97	13. 6.51. 7,2	−5. 3	+1,67	−0,13	+0.18,54	....	17.18.24,78	17.16,47	−1. 8,31
98	13. 6.54.43,6	−5. 6	+1,65	−0,14	+0.19,51	....	17.18.25,75	17.15,28	−1.10,47
99	14. 5.40.19,0	−4. 3	+1,42	+0,12	−3.10,46	17.14.14,89	17.11. 4,43	10. 4,29	−1. 0,14
100	14. 5.46.18,9	−4. 9	+1,44	+0,13	−3. 6,43	....	17.11. 8,46	10. 2,49	−1. 5,97
22	14. 5.53.45,1	−4.17	+1,47	−0,09	−1.25,12	17.12.28,36	17.11. 3,24	10. 0,27	−1. 2,97
101	14. 5.54.40,5	−4.18	+1,47	+0,15	−3. 8,38	17.14.14,89	17.11. 6,51	9.59,99	−1. 6,52
23	14. 6. 1.35,9	−4.24	+1,49	−0,10	−1.24,31	17.12.28,36	17.11. 4,05	9.57,92	−1. 6,13
24	14. 6. 9.42,6	−4.33	+1,52	−0,11	−1.29,49	....	17.10.58,87	9.55,49	−1. 3,38
102	22. 5.45.51,8	−5.21	+1,08	+0,34	−7.41,98	16.38. 4,69	16.30.22,71	29.35,69	−0.47,02
103	22. 5.58.28,5	−5.34	+1,08	+0,48	−7.46,84	....	16.30.17,85	29.33,82	−0.44,03
104	22. 6.24.31,2	−6. 0	+1,09	+0,95	−7.52,96	....	16.30.11,73	29.29,95	−0.41,78
25	22. 6.27.17,6	−6. 3	+1,09	+0,39	+0. 6,98	16.30.13,97	16.30.20,95	29.29,54	−0.51,41
26	22. 6.44.48,7	−6.20	+1,09	+1,26	+0. 6,75	....	16.30.20,72	29.26,94	−0.53,78
27	24. 5.25.50,3	−5.15	+0,98	0,00	−1. 0,02	16.24.38,93	16.23.38,91	22.59,91	−0.39,00
105	24. 5.28.20,4	−5.18	+0,98	−1,10	−5.23,12	16.29. 0,38	16.23.37,26	22.59,59	−0.37,67
28	24. 5.29. 0,3	−5.18	+0,98	−0,01	−1. 0,23	16.24.38,93	16.23.38,70	22.59,50	−0.39,20
29	24. 5.32. 6,5	−5.21	+0,98	−0,01	−1. 0,73	....	16.23.38,20	22.59,10	−0.39,10
30	24. 5.34.53,7	−5.24	+0,99	−0,02	−1. 0,23	....	16.23.38,70	22.58,74	−0.39,96
106	24. 5.37.14,9	−5.27	+0,99	−1,42	−5.26,43	16.29. 0,38	16.23.33,95	22.58,44	−0.35,51
107	24. 5.46.12,3	−5.37	+1,00	−0,04	−1. 1,04	16.24.38,93	16.23.37,89	22.57,29	−0.40,60
108	24. 5.49.26,8	−5.40	+1,00	−0,05	−1. 1,05	....	16.23.37,88	22.56,87	−0.41,01
109	24. 5.52. 3,3	−5.43	+1,00	−0,07	−1. 3,07	....	16.23.35,86	22.56,54	−0.39,32
110	24. 5.54.33,9	−5.45	+1,00	−0,08	−1. 3,08	....	16.23.35,85	22.56,22	−0.39,62
111	24. 5.56.52,6	−5.47	+1,00	−0,09	−1. 5,09	....	16.23.33,84	22.55,92	−0.37,92
31	Nov. 24. 6.16.10,2	−6. 6	+1,00	−0,41	−1. 5,41	....	16.23.33,52	22.53,44	−0.40,08

GEOCENTRIC NORTH POLAR DISTANCES *of* ENCKE'S COMET *deduced from the foregoing* OBSERVATIONS, *with the* GREENWICH MEAN SOLAR TIMES *of* OBSERVATION.

No. of the Series.	Greenwich Mean Solar Time of Observation of the Comet. 1838.	Hour angle of the Comet East of the Meridian.	Correction for Parallax.	Correction for Refraction.	Concluded Excess of N.P.D. of Comet above N.P.D. of ⚹.	Assumed North Polar Distance of ⚹.	Concluded N.P.D. of Comet by observation.	Minutes and Seconds of Tabular N.P.D.	Error of Tables.
	d. h. m. s.	h. m.	"	"	° ' "	° ' "	° ' "	' "	' "
176	Oct. 4.13.30.57,1	-0. 1	-2,5	+10,7			47.57.54,5	55.38,7	(-2.15,8)
112	4.13.56.24,0	-0.25	-2,5	+6,5	+6.25.39,5	41.27.26,6	47.53. 6,1	54.57,6	(+1.51,5)
113	4.14.37. 7,3	-1. 6	-2,7	+6,5	+6.25.32,4	....	47.52.59,0	53.51,7	(+0.52,7)
114	17. 9.28.20,6	+2.29	-1,8	-4,5	-4.26.16,5	41.27.23,4	37. 1. 6,9	0.26,8	(-0.40,1)
177	17.11.56.41,8	0. 0	0,0	+0,2			36.55.37,5	53.38,9	(-1.58,6)
115	17.13.32.34,5	-1.36	-0,5	0,0	-0. 0. 0,5	36.53.51,8	36.53.51,3	49.14,4	-4.36,9
116	17.14. 1.30,7	-2. 4	-1,2	0,0	-0. 1. 4,3	....	36.52.47,5	47.54,5	-4.53,0
117	17.14. 7. 9,8	-2.10	-1,3	0,0	-0. 1.21,5	....	36.52.30,3	47.38,9	-4.51,4
118	17.14.11.44,0	-2.15	-1,4	0,0	-0. 1.14,1	....	36.52.37,7	47.26,2	-5.11,5
119	20. 9.53.14,2	+1.30	+1,0	+6,2	+6.14.59,6	27. 7.31,1	33.22.30,7*	30.55,1	(+8.24,4)
178	20.11.24.20,7	-0. 1	+1,9	-4,3			33.32.24,9	26.18,9	-6.. 6,0
32	20.11.48.42,5	-0.27	+1,9	-0,2	-0.11.35,1	33.32.21,7	33.20.46,6*	25. 5,0	(+4.18,4)
120	26. 7.17.56,5	+2.20	+3,0	-0,2	-0.11.16,5	26.41.52,5	26.30.36,0	22.11,4	-8.24,6
121	26. 7.27.45,0	+2. 9	+3,3	-0,3	-0.11.32,4	....	26.30.20,1	21.45,3	-8.34,8
122	26. 8.43.27,1	+0.53	+5,6	-0,3	-0.14.30,1	....	26.27.22,4	18.25,1	-8.57,3
179	26. 9.36.50,0	-0. 2 -0. 2	+6,0 +6,0	-11,8 0,0	 +0. 3.33,7	 26.21.20,5	26.24.52,3 26.24.54,2	16. 4,6	-8.47,7 -8.49,6
123	26.12.31.43,8	-3. 0	+1,2	+0,2	-0.11. 1,9	26. 6.46,8	26.17.48,7	8.29,3	-9.19,4
124	29. 7.45.37,4	+0.23	+7,8	-0,1	-0. 7. 0,0	24.19.50,9	24.12.50,9	4. 3,6	-8.47,3
180	29. 8. 8.19,9	0. 0	+7,9	-14,0			24.14. 4,5	3.44,0	-10.20,5
125	29.10.53.13,0	-2.49	+3,1	-0,5	-0.26.45,8	24.38.32,6	24.11.46,8	1.31,7	-10.15,1
33	29.12.35.35,6	-4.34	-3,9	0,0	-0. 0. 3,9	24.10.36,5	24.10.32,6	0.18,2	-10.14,4
34	29.12.47.33,5	4.46	-4,8	+0,8	-0.28.45,6	24.38.32,6	24. 9.47,0	0.10,1	-9.36,9
126	Nov. 1. 9.14.13,4	2.56	+2,4	-0,7	-0.40. 2,0	25.48.23,8	25. 8.21,8	59.48,0	-8.33,8
127	1. 9.44.56,3	3.28	+0,3	-0,7	-0.39.17,0	....	25. 9. 6,8	1. 7,6	-7.59,2
128	1.10.16.22,9	4. 0	-2,1	-0,6	-0.38.15,1	....	25.10. 8,7	2.30,1	-7.38,6
129	2.12.45.14,6	7. 9	-19,2	-1,6	-0.55.58,9	27.32.35,0	26.36.36,1	30.29,4	-6. 6,7
130	2.12.58.27,5	7.22	-20,3	-1,7	-0.54.41,9	....	26.37.53,1	31.22,3	-6.30,8
131	2.13.10.58,3	7.34	-21,4	-1,8	-0.53.25,5	....	26.39. 9,5	32.12,6	-6.56,9
132	2.13.19.38,9	7.43	-22,1	-1,9	-0.53. 2,6	....	26.39.32,4	32.47,5	-6.44,9
133	2.13.28.32,3	7.52	-22,8	-1,9	-0.52. 9,7	....	26.40.25,3	33.23,3	-7. 2,0
134	7. 6.50.29,2	3.27	-7,5	+0,1	+0. 5.41,3	38.20.30,7	38.26.12,0	25.41,9	-0.30,1
135	7. 6.54.28,5	3.31	-7,7	+0,1	+0. 6.11,3	....	38.26.42,0	36.13,3	-0.28,7
136	7. 6.59. 6,8	3.35	-8,0	+4,0	+3.50. 5,0	34.37. 6,9	38.27.11,9	26.49,7	-0.22,2
137	7.10.33. 5,8	7.12	-25,1	+10,5	+4.17.41,8	....	38.54.48,7	54.58,9	+0.10,2
138	Nov. 7.11. 1. 5,1	-7.40	-27,2	+13,2	+4.21.51,2	....	38.58.58,1	58.40,7	-0.17,4

* No doubt some error in the observations.

No. of the Series.	Greenwich Mean Solar Time of Observation of the Comet. 1838.	Hour angle of the Comet East of the Meridian.	Correction for Parallax.	Correction for Refraction.	Concluded Excess of N.P.D. of Comet above N.P.D. of ✳.	Assumed North Polar Distance of ✳.	Concluded N.P.D. of Comet by observation.	Minutes and Seconds of Tabular N.P.D.	Error of Tables.
	d. h. m. s.	h. m.	"	"	° ′ "	° ′ "	° ′ "	′ "	′ "
35	Nov. 9. 6.27.48,1	−3.42	−11,9	0,0	+0.32.42,1	44.18.23,6	44.51. 5,7	52.57,6	+1.51,9
139	9. 6.29.58,7	3.44	−12,0	+7,2	+6.21.59,2	38.29.17,4	44.51.16,6	53.15,6	+1.59,0
140	9. 6.41. 6,7	3.55	−12,7	+7,3	+6.23.42,7	....	44.53. 0,1	54.48,0	+1.47,9
36	9. 6.44.53,4	3.59	−12,9	0,0	+0.34.50,7	44.18.23,6	44.53.14,3	55.19,4	+2. 5,1
37	9. 7.32.23,8	4.47	−16,2	+0,1	+0.42. 8,6	....	45. 0.32,2	1.53,7	+1.21,5
165	9. 9.39.11,8	6.55	−25,5	+22,9	+0.58.57,4	....	45.17.21,0	19.26,5	+2. 5,5
141	10. 5.48.38,0	3.19	−12,2	−5,5	−4.38.28,8	52.43.23,2	48. 4.54,4	7. 1,2	+2. 6,8
142	10. 5.55.53,7	3.26	−12,6	−5,5	−4.37.41,8	....	48. 5.41,4	8. 1,5	+2.20,1
143	10. 6. 2.43,6	3.33	−13,0	−5,6	−4.36.37,9	....	48. 6.45,3	8.58,3	+2.13,0
144	10. 6. 9.39,5	3.40	−13,4	−5,7	−4.35.56,4	....	48. 7.26,8	9.55,8	+2.29,0
38	10. 8.18.35,1	5.50	−21,7	−0,8	+0.10. 7,6	48.15.49,3	48.25.56,9	27.46,5	+1.49,6
39	10. 8.29.38,4	6. 1	−22,5	−1,7	+0.11.11,8	....	48.27. 1,1	29.18,2	+2.17,1
145	12. 9. 1.27,2	7. 2	−27,0	0,0	−0. 0.27,0	55. 3.26,9	55. 2.59,9	6. 2,2	+3. 2,3
146	12. 9.12.46,3	7.14	−27,7	+16,9	+2.21.33,5	52.42. 5,4	55. 3.38,9	7.32,7	+3.53,8
147	12. 9.56. 4,1	7.57	−29,8	+35,4	+2.27.54,9	....	55.10. 0,3	13.18,4	+3.18,1
148	12.10. 8.17,0	8. 9	−30,4	+44,1	+2.29.10,0	....	55.11.15,4	14.55,9	+3.40,5
40	13. 6.35.41,5	4.47	−20,2	+0,2	+0.42. 2,2	57.10.50,3	57.52.52,5	55.59,5	+3. 7,0
41	13. 6.42. 5,4	4.54	−20,5	+0,4	+0.43. 4,5	....	57.53.54,8	56.49,2	+2.54,4
149	13. 6.47. 5,8	4.59	−20,8	+10,0	+5.11.26,2	52.42. 5,6	57.53.31,8	57.28,0	+3.56,2
42	13. 6.47.49,4	5. 0	−20,8	+0,2	+0.42.50,0	57.10.50,3	57.53.40,3	57.33,6	+3.53,3
150	13. 6.51. 7,2	5. 3	−21,0	+10,2	+5.12.23,8	52.42. 5,6	57.54.29,4	57.59,2	+3.29,8
151	13. 6.54.43,6	5. 6	−21,2	+10,4	+5.13. 8,7	....	57.55.14,3	58.27,2	+3.12,9
43	13. 6.57.15,0	5. 9	−21,3	+0,7	+0.43.47,2	57.10.50,3	57.54.37,5	58.46,8	+4. 9,3
152	14. 5.40.19,0	4. 3	−18,8	−8,3	−4.32.52,0	65.20. 7,2	60.47.15,2	51.49,7	+4.34,5
153	14. 5.46.18,9	4. 9	−19,1	−8,5	−4.32. 8,9	....	60.47.58,3	52.34,6	+4.36,3
154	14. 5.54.40,5	4.18	−19,4	−8,9	−4.30.59,9	....	60.49. 8,3	53.37,0	+4.28,7
44	14. 6.16. 1,6	4.39	−20,3	−1,4	−0. 8.33,7	61. 0.15,5	60.51.41,8	56.16,5	+4.34,7
45	14. 6.28.43,6	4.52	−20,9	+1,9	−0. 6.30,3	....	60.53.45,2	57.51,3	+4. 6,1
166	22. 5.17. 8,6	4.52	−19,5	−1,3	+0.51.14,6	79.33.54,3	80.25. 8,9	28.41,5	+3.32,6
167	22. 5.23.41,5	4.59	−19,6	+7,4	+0.51.45,4	....	80.25.39,7	29.13,5	+3.33,8
155	22. 5.45.51,8	5.21	−19,9	−7,6	−0.40. 6,1	81. 7.10,4	80.27. 4,3	31. 1,8	+3.57,5
156	22. 5.58.28,5	5.34	−20,1	−10,1	−0.39.19,9	....	80.27.50,5	32. 3,4	+4.12,9
157	22. 6.24.31,2	6. 0	−20,4	−19,2	−0.36.31,1	....	80.30.39,3	34.10,5	+3.31,2
46	22. 6.33.21,5	6. 9	−20,5	−23,1	+0.19.33,7	80.11.28,8	80.31. 2,5	34.53,6	+3.51,1
47	22. 6.52.48,4	6.28	−20,7	−73,3	+0.21. 5,9	....	80.32.34,7	36.28,3	+3.53,6
158	24. 5.28.20,4	5.18	−18,8	+23,4	+1.34.23,7	82.33.33,7	84. 7.57,4	11.41,1	+3.43,7
159	24. 5.37.149	5.27	−18,8	+29,4	+1.35. 3,5	....	84. 8.37,2	12.20,1	+3.42,9
48	24. 5.44. 2,4	5.34	−18,9	−16,1	+0. 1.10,9	84. 7.52,3	84. 9. 3,2	12.49,8	+3.46,6
160	24. 5.46.12,3	5.37	−18,9	+0,8	+0. 1.26,2	....	84. 9.18,5	12.59,3	+3.40,8
161	24. 5.49.26,8	5.40	−18,9	+1,0	+0. 1.32,5	....	84. 9.24,8	13.13,5	+3.48,7
162	24. 5.52. 3,3	5.43	−18,9	+1,3	+0. 1.58,4	....	84. 9.50,7	13.24,9	+3.34,2
49	24. 5.54. 8,7	5.44	−18,9	−9,7	+0. 2.11,1	....	84.10. 3,4	13.34,0	+3.30,6
163	24. 5.54.33,9	5.45	−18,9	+1,6	+0. 2.12,2	....	84.10. 4,5	13.35,9	+3.31,4
164	24. 5.56.52,6	5.47	−18,9	+1,8	+0. 2.26,5	....	84.10.18,8	13.46,0	+3.27,2
50	Nov. 24. 6. 7.50,6	−5.58	−19,0	−13,1	+0. 3.10,7	....	84.11. 3,0	14.33,9	+3.30,9

Occasional Remarks *and* Physical Observations *made on* Encke's Comet *during the Apparition of* 1838.

The following were made by Mr Glaisher:

Oct. 4, $13^{h}.30^{m}$. Something like a Comet seen at the comb of the Circle Telescope. Shortly after I saw the same object with the Telescope of the five-feet Equatoreal, and took some rough observations of its position. The decrease of N.P.D. from $2^{h}.50^{m}$. to $3^{h}.45^{m}$. sidereal time, was about three micrometer revolutions.

Oct. 17, 12^{h}. Comet seen entering the field of view of the Circle Telescope; so faint that the observations taken of it are extremely doubtful.

Oct. 26, $9^{h}.35^{m}$. The light of the Comet as seen in the Circle Telescope spreads over $6'$ or $7'$, apparently with an excess on that side which is actually turned from the Sun.

Oct. 29, 8^{h}. Comet to-night diminished in size and fainter, on account of the Moon-light.

Nov. 2, at 4^{h} sidereal time, the Comet passed over a star of about the 8th or 9th magnitude, which was distinctly visible the whole of the time. [This is the star called (*Q*) in the list of page (67). At the time of the Comet's passage over it, its R.A. was $20^{h}.24^{m}.7^{s},66$ and N.P.D. $26^{\circ}.37'.48'',1$.]

Nov. 7, 11^{h}. The Comet remarkably bright, and certainly visible to the naked eye, appearing about two-thirds of the size of the Pleiades. The condensation is much the greatest at one part, about which the light is pretty equally diffused. In passing over a star to-night, it had the appearance of having a stellar nucleus.

Nov. 9, $6\frac{1}{2}^{h}$. The light of the Comet takes 44^{s} in entering completely the field of the Telescope; at times I thought the light extended much farther, but was doubtful. [The Telescope was that of the five-feet Equatoreal.]

Nov. 9, 10^{h}. The Comet is very bright and visible to the naked eye. Seen in the Telescope it was fan-shaped, being brightest and pretty well defined at the apparent lower part, and gradually shading off towards the upper.

Nov. 10, 7^{h}. Comet ill-defined and its light much diffused [owing no doubt to atmospheric causes].

Nov. 12, 9^{h}. With a power of 30 applied to the five-feet Equatoreal Telescope, the Comet is well defined and admits of accurate observation. The apparent lower part is the most condensed and best defined: the light diverges upwards through a great part of the field.

Nov. 14, 6^{h}. Comet bright and pretty well defined at the lower part, the light gradually shading off so as to be visible through a space of about $10'$.

Nov. 22, 6^{h}. The Comet bright and well defined: the light not so diffused as when last seen: the brightest part apparently more in the center of the light.

Nov. 24, $5\frac{1}{2}^{h}$. The Comet was fainter to-night and diminished in size, not spreading over more than $2'$ of space.

The following observations were made by myself with the Northumberland Telescope:

Nov. 9, 8^h. The Comet to-night appeared decidedly not circular, but fan-shaped. The brightest part was on that side which *followed* in right ascension. The boundary of the light on this side was better defined than on the opposite. I observed as follows for determining the position of a line passing through the brightest part and bisecting the Comet, which may be called its *axis*. During the observation the instrument was moved by the clock.

Reading of the index of the position circle when a star was made to pass along the straight boundary of the field	147°. 10′
Reading when the Comet was bisected by the same boundary	68°. 20′

The difference 78°. 50′, is the angle which the axis of the Comet made with a parallel of declination: and consequently 11°. 10′, the angle which the axis made with the circle of declination through the pole, reckoning from the south point, as seen in the heavens, towards the west. The brightest part of the Comet was that which was directed towards the pole. The above observation was very doubtful, being made when the Comet was low.

Nov. 10, $7\frac{1}{4}^h$. The reading of the position circle for the direction of the axis of the Comet, observed in the same manner as before, was 87°. 41′, and consequently the angle made by the axis with the declination circle, 30°. 31′. This observation was better than that of the preceding night, being made under more favourable circumstances.

Nov. 12, 6^h. The micrometer eye-piece was so placed that the position circle read 0° when a star passed along the micrometer wire, which is perpendicular to the straight edge of the field; and when the axis of the Comet was made to coincide with the edge, the position circle read 20°. 18′, which is therefore the angle that the axis of the Comet made with the circle of declination, reckoning in the heavens from the south point towards the west.

Nov. 13, 7^h. Angle of position of axis of Comet measured as before	19°. 57′.
Nov. 14, $5\frac{1}{2}^h$.	15°. 12′.
Nov. 22, 6^h.	16°. 0′.

OCCULTATIONS

OF

FIXED STARS BY THE MOON

WITH

THE EQUATIONS GIVEN BY THE CALCULATION
OF THE OCCULTATIONS.

1838.

Day of Observation 1838.	Phenomenon.	Moon's Limb.	Observer.	Instrument.	Clock or Chronom.	Time noted.	Time by Hardy.	Sidereal Time.	Greenwich Mean Solar Time.
						h. m. s.	h. m. s.	h. m. s.	h. m. s.
Mar. 10	(*a*) Reappearance of σ Leonis	Bright	G.	46-inch Dollond	W.	12.59.41,5	12.12. 2,66	12.12.56,48	12.59.33,49
			C.	5-feet Equatoreal	G.	12.13.44	12.12. 9,52		
Apr. 12	(*b*) Reappearance of χ Libræ	Dark	G.	5-feet Equatoreal	G.	13.20. 6,8	13.17.46,48	13.18.20,23	11.55. 1,59
July 9	(*c*) Disappearance of κ Capricorni	Bright	C.	5-feet Equatoreal	G.	18. 7.44,5	18. 6.20,44	18. 6.39,03	10.56.32,92
...	(*d*) Reappearance of κ Capricorni	Dark	C.	5-feet Equatoreal	G.	19.11.27,8	19.10. 3,27	19.10.21,91	12. 0. 5,36
31	(*e*) Disappearance of *m* Scorpii	Dark	C.	5-feet Equatoreal	G.	17.38.21,7	17.35.10,09	17.35.51,86	8.59.20,76
			G.	46-inch Dollond	W.	9. 0.28,8	17.35.10,13	17.35.51,90	8.59.20,80
Oct. 29	(*f*) Reappearance of *n* Piscium	Bright	G.	46 inch Dollond	W.	13.39.20	4.10. 4,16	4.10.12,87	13.38. 6,03
Dec. 3	(*g*) Disappearance of 47 Geminorum	Bright	C.	5-feet Equatoreal	G.	2.28.43,8	2.26.15,34	2.26.44,30	9.37.17,52
...	(*h*) Reappearance of 47 Geminorum	Dark	C.	5-feet Equatoreal	G.	3.51.55,0	3.29.26,24	3.29.55,24	10.40.18,11
27	(*i*) Disappearance of 9 Tauri	Dark	C.	5-feet Equatoreal	G.	3.34.37,4	3.33.37,13	3.34.19,18	9.10.19,44
...	(*k*) Disappearance of *d* Pleiadum	Dark	C.	5-feet Equatoreal	G.	8.26.51,0	8.25.48,93	8.26.31,14	14. 1.43,53
...	(*l*) Disappearance of η Tauri	Dark	C.	5-feet Equatoreal	G.	9.12.29,5	9.11.27,16	9.12. 9,40	14.47.14,31
...	(*m*) Reappearance of *d* Pleiadum	Bright	C.	5-feet Equatoreal	G.	9.17.36,0	9.16.33,63	9.17.15,87	14.52.19,95
...	(*n*) Reappearance of η Tauri	Bright	C.	5-feet Equatoreal	G.	9.34. 1,0	9.32.58,50	9.33.40,75	15. 8.42,13
...	(*o*) Disappearance of *f* Pleiadum	Dark	C.	5-feet Equatoreal	G.	9.37.44,0	9.36.41,48	9.37.23,73	15.12.24,51
...	(*p*) Disappearance of *h* Pleiadum	Dark	C.	5-feet Equatoreal	G.	9.47.30,0	9.46.27,43	9.47. 9,69	15.22. 8,87
...	(*q*) Reappearance of *f* Pleiadum	Bright	C.	5-feet Equatoreal	G.	10.24.44,0	10.23.41,26	10.24.23,54	15.59.16,62
31	(*r*) Disappearance of *c* Geminorum	Bright	C.	5-feet Equatoreal	G.	3.33.36,0	3.31.59,46	3.32.44,88	8.53. 1,73
...	(*s*) Reappearance of *c* Geminorum	Dark	C.	5-feet Equatoreal	G.	4.11.17,0	4. 9.40,28	4.10.25,72	9.30.36,39

(*a*) The Moon rather clouded. The observation by G was satisfactory. The star, when first seen by C, was judged to be about 10ˢ from the limb: it was not looked for at the right place.

(*b*) Very satisfactory.

(*c*) Moon low and much waving of limb: not certain to a second.

(*d*) Very good: certainly not one-fourth of a second in error.

(*e*) Both observations very satisfactory.

(*f*) Perhaps 2 or 3 seconds too late. The Telescope was much disturbed by the wind: in other respects the circumstances were favorable. (*g*) Satisfactory.

(*h*) Very good: as nearly as possible at the second.

(*i*) Satisfactory. In the second comparison of W with H on this day, the seconds of W should be 30 instead of 35.

(*k*) The noted time is very exact. (*l*) Good.

(*m*) Pretty satisfactory.

(*n*) Hanging on the limb, but, I think, seen early.

(*o*) Excellent: exactly at the second. (*p*) Very good.

(*q*) Good, I think. The sky during the whole of the observations of this night was beautifully clear.

(*r*) Not satisfactory. The star seemed to appear and disappear several times just as it reached the limb.

(*s*) Rather doubtful.

On May 8, Mr Glaisher made the two observations following, with the five-feet Equatoreal and Clock Graham.

(1) Ingress of Jupiter's 1st Satellite on the Planet's disc.

Time noted.	Time by Hardy.	Sidereal Time.	Greenwich Mean Solar Time.
h. m. s.	h. m. s.	h. m. s.	h. m. s.
11 . 52 . 30	11 . 49 . 36,1	11 . 50 . 40,95	8 . 45 . 23,0

(2) Ingress of the shadow of Jupiter's 1st Satellite on the Planet's disc.

Time noted.	Time by Hardy.	Sidereal Time.	Greenwich Mean Solar Time.
h. m. s.	h. m. s.	h. m. s.	h. m. s.
13 . 5 . 10	13 . 2 . 16,1	13 . 3 . 21,0	9 . 57 . 51,2

The times noted are respectively the times of apparent bisection of the Satellite and shadow by the limb of the Planet. Both observations were doubtful.

Reappearance of σ Leonis, March 10, $12^h . 59^m . 33^s,49 + t^s$ Greenwich Mean Solar Time.

Moon's Geocentric Right Ascension in arc	$168^\circ . 34' . 48'',00 + 0'',4412 \times t + x''$
Moon's Geocentric N.P.D.	$82 . 32 . 4,22 + 0,2294 \times t + y$
Moon's Horizontal Equatoreal Parallax	$53 . 56,05 \times (1 + 0,001 \times m)$
Moon's Geocentric Semidiameter	$14 . 41,84 \times (1 + 0,001 \times n)$
Star's Right Ascension in arc.	$168 . 12 . 9,75 + e''$
Star's N.P.D.	$83 . 5 . 8,30 + f.$
Moon's apparent Right Ascension in arc	$168^\circ . 26' . 16'',22 + 0'',3032 \times t - 0'',5118 \times m + x''$
Moon's apparent N.P.D.	$83 . 10 . 23,37 + 0,2337 \times t + 2,2992 \times m + y$
Moon's apparent Semidiameter	$14 . 51,45 - 0,0002 \times t + 0,8915 \times n.$

Apparent Distance of Star from Moon's center:

$$14' . 57'',51 + 0'',9296 \{- e + x + 0,3032 \times t - 0,5118 \times m\}$$
$$+ 0'',3513 \{y + 0,2337 \times t + 2,2992 \times m\} - 0'',3509 \times f.$$

Final Equation:

$$- 6'',06 = - 0,9296 \times e - 0,3509 \times f + 0,9296 \times x + 0,3513 \times y + 0,3641 \times t + 0,3319 \times m - 0,8915 \times n.$$

Reappearance of χ Libræ, April 12, $11^h . 55^m . 1^s,59 + t^s$ Greenwich Mean Solar Time.

Moon's Geocentric Right Ascension in arc	$232^\circ . 25' . 51'',30 + 0'',5430 \times t + x''$
Moon's Geocentric N.P.D.	$112 . 40 . 12,24 + 0,1625 \times t + y$
Moon's Horizontal Equatoreal Parallax	$55 . 45,60 \times (1 + 0,001 \times m)$
Moon's Geocentric Semidiameter	$15 . 11,67 \times (1 + 0,001 \times n)$
Star's Right Ascension in arc	$232 . 41 . 11,85 + e''$
Star's N.P.D.	$113 . 17 . 17,60 + f.$
Moon's apparent Right Ascension in arc	$232^\circ . 46' . 9'',74 + 0'',4115 \times t + 1'',2184 \times m + x''$
Moon's apparent N.P.D.	$113 . 31 . 52,92 + 0,1940 \times t + 3,1007 \times m + y$
Moon's apparent Semidiameter	$15 . 14,12 + 0,0003 \times t + 0,9141 \times n.$

Apparent Distance of Star from Moon's center:

$$15' . 17'',01 + 0'',2736 \{ - e + x + 0,4115 \times t + 1,2184 \times m\}$$
$$+ 0'',9545 \{y + 0,1940 \times t + 3,1007 \times m\} - 0'',9547 \times f.$$

Final Equation:

$$- 2'',89 = - 0,2736 \times e - 0,9547 \times f + 0,2736 \times x + 0,9545 \times y + 0,2974 \times t + 3,2930 \times m - 0,9141 \times n.$$

Disappearance of κ Capricorni, July 9, $10^h . 56^m . 32^s,92 + t^s$ Greenwich Mean Solar Time.

Moon's Geocentric Right Ascension in arc	$322^{\circ} . 37' . 11'',85 + 0'',5936 \times t + x''$
Moon's Geocentric N.P.D.	$108 . 44 . 43,10 - 0,2249 \times t + y$
Moon's Horizontal Equatoreal Parallax	$59 . 52,09 \times (1 + 0,001 \times m)$
Moon's Geocentric Semidiameter	$16 . 18,89 \times (1 + 0,001 \times n)$
Star's Right Ascension in arc	$323 . 24 . 47,70 + e''$
Star's N.P.D.	$109 . 35 . 51,10 + f.$

Moon's apparent Right Ascension in arc	$323^{\circ} . 7' . 33'',60 + 0'',4915 \times t + 1'',8218 \times m + x''$
Moon's apparent N.P.D.	$109 . 36 . 48,66 - 0,1844 \times t + 3,1256 \times m + y$
Moon's apparent Semidiameter	$16 . 20,68 + 0,0005 \times t + 0,9807 \times n.$

Apparent Distance of Star from Moon's center:

$$16' . 15'',38 + 0'',9404 \{+ e - x - 0,4915 \times t - 1,8218 \times m\}$$
$$+ 0'',0582 \{y - 0,1844 \times t + 3,1256 \times m\} - 0'',0598 \times f.$$

Final Equation;

$$+4'',83 = + 0,9404 \times e - 0,0598 \times f - 0,9404 \times x + 0,0582 \times y - 0,4734 \times t - 1,5313 \times m - 0,9807 \times n.$$

Reappearance of κ Capricorni, July 9, $12^h . 0^m . 5^s,36 + t^s$ Greenwich Mean Solar Time.

Moon's Geocentric Right Ascension in arc	$323^{\circ} . 14' . 51'',90 + 0'',5921 \times t + x''$
Moon's Geocentric N.P.D.	$108 . 30 . 21,78 - 0,2269 \times t + y$
Moon's Horizontal Equatoreal Parallax	$59 . 52,50 \times (1 + 0,001 \times m)$
Moon's Geocentric Semidiameter	$16 . 19,00 \times (1 + 0,001 \times n)$
Star's Right Ascension in arc	$323 . 24 . 47,70 + e''$
Star's N.P.D.	$109 . 35 . 51,10 + f.$

Moon's apparent Right Ascension in arc	$323^{\circ} . 37' . 40'',26 + 0'',4595 \times t + 1'',3684 \times m + x''$
Moon's apparent N.P.D.	$109 . 24 . 41,43 - 0,1968 \times t + 3,2597 \times m + y$
Moon's apparent Semidiameter	$16 . 22,68 + 0,0004 \times t + 0,9827 \times n.$

Apparent Distance of Star from Moon's center:

$$16' . 29'',33 + 0'',6939 \{- e + x + 0,4595 \times t + 1,3684 \times m\}$$
$$- 0'',6775 \{y - 0,1968 \times t + 3,2597 \times m\} + 0'',6765 \times f.$$

Final Equation:

$$- 6'',65 = - 0,6939 \times e + 0,6765 \times f + 0,6939 \times x - 0,6775 \times y + 0,4515 \times t - 1,2589 \times m - 0,9827 \times n.$$

Disappearance of *m* Scorpii, July 31, $8^{h}.59^{m}.20^{s},78+t^{s}$ Greenwich Mean Solar Time.

Moon's Geocentric Right Ascension in arc	$239^{\circ}.35'.21'',30+0'',5699\times t+x''$
Moon's Geocentric N.P.D.	$114.52.47,87+0,1334\times t+y$
Moon's Horizontal Equatoreal Parallax	$56.20,22\times(1+0,001\times m)$
Moon's Geocentric Semidiameter	$15.21,13\times(1+0,001\times n)$
Star's Right Ascension in arc	$239.34.28,95+e''$
Star's N.P.D.	$115.53.25,10+f.$
Moon's apparent Right Ascension in arc	$239^{\circ}.19'.27'',47+0'',4229\times t-0'',9538\times m+x''$
Moon's apparent N.P.D.	$115.46.23,53+0,1071\times t+3,2157\times m+y$
Moon's apparent Semidiameter	$15.23,68-0,0002\times t+0,9237\times n.$

Apparent Distance of Star from Moon's center:

$$15',14'',38+0'',7989\,\{+e-x-0,4229\times t+0,9538\times m\}$$
$$-0'',4619\,\{y+0,1071\times t+3,2157\times m\}+0'',4603\times f.$$

Final Equation:

$$+9'',30=+0,7989\times e+0,4603\times f-0,7989\times x-0,4619\times y-0,3871\times t-0,7233\times m-0,9237\times n.$$

Reappearance of *n* Piscium, Oct. 29, $13^{h}.38^{m}.6^{s},03+t^{s}$ Greenwich Mean Solar Time.

Moon's Geocentric Right Ascension in arc	$355^{\circ}.44'.32'',10+0'',5438\times t+x''$
Moon's Geocentric N.P.D.	$92.43.25,86-0,2956\times t+y$
Moon's Horizontal Equatoreal Parallax	$1.\ 0.31,12\times(1+0,001\times m)$
Moon's Geocentric Semidiameter	$16.29,52\times(1+0,001\times n)$
Star's Right Ascension in arc	$354.54.56,85+e''$
Star's N.P.D.	$93.39.16,20+f.$
Moon's apparent Right Ascension in arc	$355^{\circ}.10'.11'',80+0'',4833\times t-2'',0603\times m+x''$
Moon's apparent N.P.D.	$93.31.50,28-0,3045\times t+2,9044\times m+y$
Moon's apparent Semidiameter	$16.32,94-0,0007\times t+0,9929\times n.$

Apparent Distance of Star from Moon's center:

$$16'.56'',21+0'',8968\,\{-e+x+0,4833\times t-2,0603\times m\}$$
$$-0'',4389\,\{y-0,3045\times t+2,9044\times m\}+0'',4387\times f.$$

Final Equation:

$$-23'',27=-0,8968\times e+0,4387\times f+0,8968\times x-0,4389\times y+0,5678\times t-3,1224\times m-0,9929\times n^{*}.$$

* It seems probable from this result that the noted time of observation was 30ˢ in error.

Disappearance of 47 Geminorum, Dec. 3, $9^h.37^m.17^s{,}52 + t^s$ Greenwich Mean Solar Time.

Moon's Geocentric Right Ascension in arc	$104^\circ.26'.50''{,}40 + 0''{,}6318 \times t + x''$
Moon's Geocentric N.P.D.	$62.14.11{,}81 + 0{,}0659 \times t + y$
Moon's Horizontal Equatoreal Parallax	$57.43{,}62 \times (1 + 0{,}001 \times m)$
Moon's Geocentric Semidiameter	$15.43{,}82 \times (1 + 0{,}001 \times n)$
Star's Right Ascension in arc	$105.21.\ 5{,}25 + e''$
Star's N.P.D.	$62.53.\ 1{,}10 + f.$
Moon's apparent Right Ascension in arc	$105^\circ.\ 4'.\ 4''{,}63 + 0''{,}5698 \times t + 2''{,}2342 \times m + x''$
Moon's apparent N.P.D.	$62.48.32{,}44 + 0{,}0030 \times t + 2{,}0606 \times m + y$
Moon's apparent Semidiameter	$15.52{,}88 + 0{,}0006 \times t + 0{,}9529 \times n.$

Apparent Distance of Star from Moon's center:

$$15'.47''{,}04 + 0''{,}8531\,\{+ e - x - 0{,}5698 \times t - 2{,}2342 \times m\}$$
$$- 0''{,}2826\,\{y + 0{,}0030 \times t + 2{,}0606 \times m\} + 0''{,}2848 \times f.$$

Final Equation:

$$+ 5{,}''84 = + 0{,}8531 \times e + 0{,}2848 \times f - 0{,}8531 \times x - 0{,}2826 \times y - 0{,}4875 \times t - 2{,}3883 \times m - 0{,}9529 \times n.$$

Reappearance of 47 Geminorum, Dec. 3, $10^h.40^m.18^s{,}11 + t^s$ Greenwich Mean Solar Time.

Moon's Geocentric Right Ascension in arc	$105^\circ.\ 6'.35''{,}85 + 0''{,}6302 \times t + x''$
Moon's Geocentric N.P.D.	$62.18.26{,}44 + 0{,}0694 \times t + y$
Moon's Horizontal Equatoreal Parallax	$57.41{,}50 \times (1 + 0{,}001 \times m)$
Moon's Geocentric Semidiameter	$15.43{,}24 \times (1 + 0{,}001 \times n)$
Star's Right Ascension in arc	$105.21.\ 5{,}25 + e''$
Star's N.P.D.	$62.53.\ 1{,}10 + f.$
Moon's apparent Right Ascension in arc	$105^\circ.38'.36''{,}86 + 0''{,}5282 \times t + 1''{,}9210 \times m + x''$
Moon's apparent N.P.D.	$62.49.\ 2{,}95 + 0{,}0152 \times t + 1{,}8365 \times m + y$
Moon's apparent Semidiameter	$15.54{,}31 + 0{,}0005 \times t + 0{,}9543 \times n.$

Apparent Distance of Star from Moon's center:

$$16'.5''{,}57 + 0''{,}8624\,\{- e + x + 0{,}5282 \times t + 1{,}9210 \times m\}$$
$$- 0''{,}2456\,\{y + 0{,}0152 \times t + 1{,}8365 \times m\} + 0''{,}2478 \times f.$$

Final Equation:

$$- 11''{,}26 = - 0{,}8624 \times e + 0{,}2478 \times f + 0{,}8624 \times x - 0{,}2456 \times y + 0{,}4513 \times t + 1{,}2056 \times m - 0{,}9543 \times n.$$

Disappearance of 9 Tauri, Dec. 27, $9^h.10^m.19^s,44 + t^s$ Greenwich Mean Solar Time.

Moon's Geocentric Right Ascension in arc	$51^\circ.37'.16'',95 + 0'',6127 \times t + x''$
Moon's Geocentric N.P.D.	$66.54.47,00 - 0,1740 \times t + y$
Moon's Horizontal Equatoreal Parallax	$59.\ 6,23 \times (1 + 0,001 \times m)$
Moon's Geocentric Semidiameter	$16.\ 6,35 \times (1 + 0,001 \times n)$
Star's Right Ascension in arc	$51.52.52,95 + e''$
Star's N.P.D.	$67.19.21,20 + f.$

Moon's apparent Right Ascension in arc	$51^\circ.35'.55'',12 + 0'',4458 \times t - 0'',0818 \times m + x''$
Moon's apparent N.P.D.	$67.23.45,93 - 0,1720 \times t + 1,7389 \times m + y$
Moon's apparent Semidiameter	$16.21,04 + 0,0000 \times t + 0,9810 \times n.$

Apparent Distance of Star from Moon's center:

$$16'.15'',98 + 0'',8886 \{+ e - x - 0,4458 \times t + 0,0818 \times m\}$$
$$+ 0'',2722 \{y - 0,1720 \times t + 1,7389 \times m\} - 0'',2704 \times f.$$

Final Equation:

$$+ 5'',06 = + 0,8886 \times e - 0,2704 \times f - 0,8886 \times x + 0,2722 \times y - 0,4429 \times t + 0,5460 \times m - 0,9810 \times n.$$

Disappearance of *d* Pleiadum, Dec. 27, $14^h.1^m.43^s,53 + t^s$ Greenwich Mean Solar Time.

Moon's Geocentric Right Ascension in arc	$54^\circ.36'.51'',00 + 0'',6196 \times t + x''$
Moon's Geocentric N.P.D.	$66.\ 5.49,02 - 0,1620 \times t + y$
Moon's Horizontal Equatoreal Parallax	$59.\ 3,36 \times (1 + 0,001 \times m)$
Moon's Geocentric Semidiameter	$16.\ 5,56 \times (1 + 0,001 \times n)$
Star's Right Ascension in arc	$54.11.57,00 + e''$
Star's N.P.D.	$66.33.19,40 + f.$

Moon's apparent Right Ascension in arc	$53^\circ.58'.59'',68 + 0'',5699 \times t - 2'',2713 \times m + x''$
Moon's apparent N.P.D.	$66.44\ \ 8,92 - 0,1048 \times t + 2,2999 \times m + y$
Moon's apparent Semidiameter	$16.13,68 - 0,0006 \times t + 0,9737 \times n.$

Apparent Distance of Star from Moon's center:

$$16'.4'',96 + 0'',6791 \{+ e - x - 0,5699 \times t + 2,2713 \times m\}$$
$$+ 0'',6737 \{y - 0,1048 \times t + 2,2999 \times m\} - 0'',6725 \times f.$$

Final Equation:

$$+ 8'',72 = + 0,6791 \times e - 0,6725 \times f - 0,6791 \times x + 0,6737 \times y - 0,4566 \times t + 3,0919 \times m - 0,9737 \times n.$$

Disappearance of η Tauri, Dec. 27, $14^h.47^m.14^s{,}31 + t^s$ Greenwich Mean Solar Time.

Moon's Geocentric Right Ascension in arc	$\overset{\circ}{55}.\ \overset{\prime}{5}.\ \overset{\prime\prime}{4{,}50} + \overset{\prime\prime}{0{,}6207} \times t + \overset{\prime\prime}{x}$
Moon's Geocentric N.P.D.	$65 . 58 . 29{,}35 - 0{,}1601 \times t + y$
Moon's Horizontal Equatoreal Parallax	$59 .\ 2{,}88 \times (1 + 0{,}001 \times m)$
Moon's Geocentric Semidiameter	$16 .\ 5{,}44 \times (1 + 0{,}001 \times n)$
Star's Right Ascension in arc......................	$54 . 29 .\ 6{,}75 + e''$
Star's N.P.D.	$66 . 23 . 40{,}80 + f.$

Moon's apparent Right Ascension in arc.........	$\overset{\circ}{54} . \overset{\prime}{25} . \overset{\prime\prime}{37{,}71} + \overset{\prime\prime}{0{,}6022} \times t - \overset{\prime\prime}{2{,}3668} \times m + \overset{\prime\prime}{x}$
Moon's apparent N.P.D.	$66 . 39 . 27{,}41 - 0{,}1004 \times t + 2{,}4581 \times m + y$
Moon's apparent Semidiameter......................	$16 . 11{,}81 - 0{,}0007 \times t + 0{,}9718 \times n.$

Apparent Distance of Star from Moon's center:

$$16'.5'',83 + 0'',1821 \left\{+ e - x - 0{,}6022 \times t + 2{,}3668 \times m\right\}$$
$$+ 0'',9802 \left\{y - 0{,}1004 \times t + 2{,}4581 \times m\right\} - 0'',9802 \times f.$$

Final Equation:

$$+ 5'',98 = + 0{,}1821 \times e - 0{,}9802 \times f - 0{,}1821 \times x + 0{,}9802 \times y - 0{,}2074 \times t + 2{,}8404 \times m - 0{,}9718 \times n.$$

Reappearance of *d* Pleiadum, Dec. 27, $14^h.52^m.19^s{,}95 + t^s$ Greenwich Mean Solar Time.

Moon's Geocentric Right Ascension in arc	$\overset{\circ}{55}.\ \overset{\prime}{8}. \overset{\prime\prime}{14{,}10} + \overset{\prime\prime}{0{,}6208} \times t + \overset{\prime\prime}{x}$
Moon's Geocentric N.P.D.	$65 . 57 . 40{,}46 - 0{,}1599 \times t + y$
Moon's Horizontal Equatoreal Parallax	$59 .\ 2{,}83 \times (1 + 0{,}001 \times m)$
Moon's Geocentric Semidiameter	$16 .\ 5{,}42 \times (1 + 0{,}001 \times n)$
Star's Right Ascension in arc	$54 . 11 . 57{,}00 + e''$
Star's N.P.D.	$66 . 33 . 19{,}40 + f.$

Moon's apparent Right Ascension in arc.........	$\overset{\circ}{54} . \overset{\prime}{28} . \overset{\prime\prime}{41{,}97} + \overset{\prime\prime}{0{,}6058} \times t - \overset{\prime\prime}{2{,}3721} \times m + \overset{\prime\prime}{x}$
Moon's apparent N.P.D.	$66 . 38 . 56{,}62 - 0{,}1000 \times t + 2{,}4762 \times m + y$
Moon's apparent Semidiameter......................	$16 . 11{,}59 - 0{,}0007 \times t + 0{,}9716 \times n.$

Apparent Distance of Star from Moon's center:

$$16'.22'',04 + 0'',8622 \left\{- e + x + 0{,}6058 \times t - 2{,}3721 \times m\right\}$$
$$+ 0'',3443 \left\{y - 0{,}1000 \times t + 2{,}4762 \times m\right\} - 0'',3425 \times f.$$

Final Equation:

$$- 10'',45 = - 0{,}8622 \times e - 0{,}3425 \times f + 0{,}8622 \times x + 0{,}3443 \times y + 0{,}4886 \times t - 1{,}1927 \times m - 0{,}9716 \times n.$$

Reappearance of η Tauri, Dec. 27, $15^h.\ 8^m.\ 42^s,13 + t^s$ Greenwich Mean Solar Time.

Moon's Geocentric Right Ascension in arc	$55^\circ.\ 18'.\ 24'',15 + 0'',6212 \times t + x''$
Moon's N.P.D.	$65.\ 55.\ 3,81 - 0,1592 \times t + y$
Moon's Horizontal Equatoreal Parallax	$59.\ 2,66 \times (1 + 0,001 \times m)$
Moon's Geocentric Semidiameter	$16.\ 5,37 \times (1 + 0,001 \times n)$
Star's Right Ascension in arc	$54.\ 29.\ 6,75 + e''$
Star's N.P.D.	$66.\ 23.\ 40,80 + f.$

Moon's apparent Right Ascension in arc	$54^\circ.\ 38'.\ 42'',21 + 0'',5854 \times t - 2'',3819 \times m + x''$
Moon's apparent N.P.D.	$66.\ 37.\ 18,40 - 0,0989 \times t + 2,5346 \times m + y$
Moon's apparent Semidiameter	$16.\ 10,90 - 0,0007 \times t + 0,9709 \times n.$

Apparent Distance of Star from Moon's center:

$$16'.\ 13'',14 + 0'',4973 \{- e + x + 0,5854 \times t - 2,3819 \times m\}$$
$$+ 0'',8403 \{y - 0,0989 \times t + 2,5346 \times m\} - 0'',8397 \times f.$$

Final Equation:

$$- 2'',24 = - 0,4973 \times e - 0,8397 \times f + 0,4973 \times x + 0,8403 \times y + 0,2087 \times t + 0,9453 \times m - 0,9709 \times n.$$

Disappearance of *f* Pleiadum, Dec. 27, $15^h.\ 12^m.\ 24^s,51 + t^s$ Greenwich Mean Solar Time.

Moon's Geocentric Right Ascension in arc	$55^\circ.\ 20'.\ 42'',30 + 0'',6212 \times t + x''$
Moon's Geocentric N.P.D.	$65.\ 54.\ 28,43 - 0,1590 \times t + y$
Moon's Horizontal Equatoreal Parallax	$59.\ 2,62 \times (1 + 0,001 \times m)$
Moon's Geocentric Semidiameter	$16.\ 5,36 \times (1 + 0,001 \times n)$
Star's Right Ascension in arc	$54.\ 54.\ 14,55 + e''$
Star's N.P.D.	$66.\ 26.\ 27,90 + f.$

Moon's apparent Right Ascension in arc	$54^\circ.\ 40'.\ 59'',70 + 0'',6202 \times t - 2'',3826 \times m + x''$
Moon's apparent N.P.D.	$66.\ 36.\ 56,28 - 0,0988 \times t + 2,5479 \times m + y$
Moon's apparent Semidiameter	$16.\ 10,75 - 0,0007 \times t + 0,9708 \times n.$

Apparent Distance of Star from Moon's center:

$$16'.\ 2'',51 + 0'',6949 \{+ e - x - 0,6202 \times t + 2,3826 \times m\}$$
$$+ 0'',6534 \{y - 0,0988 \times t + 2,5479 \times m\} - 0'',6522 \times f.$$

Final Equation:

$$+ 8'',24 = + 0,6949 \times e - 0,6522 \times f - 0,6949 \times x + 0,6534 \times y - 0,4948 \times t + 3,3205 \times m - 0,9708 \times n.$$

Disappearance of *h* Pleiadum, Dec. 27, $15^{h}.22^{m}.8^{s}{,}87 + t^{s}$ Greenwich Mean Solar Time.

Moon's Geocentric Right Ascension in arc	$55^{\circ}.26'.45''{,}45 + 0''{,}6215 \times t + x''$
Moon's Geocentric N.P.D.	$65.52.55{,}65 - 0{,}1586 \times t + y$
Moon's Horizontal Equatoreal Parallax	$59.\ 2{,}51 \times (1 + 0{,}001 \times m)$
Moon's Geocentric Semidiameter	$16.\ 5{,}33 \times (1 + 0{,}001 \times n)$
Star's Right Ascension in arc......................	$54.54.21{,}45 + e''$
Star's N.P.D.	$66.21.27{,}00 + f.$
Moon's apparent Right Ascension in arc.........	$54^{\circ}.47'.\ 3''{,}86 + 0''{,}6273 \times t - 2''{,}3816 \times m + x''$
Moon's apparent N.P.D............................	$66.35.58{,}39 - 0{,}0984 \times t + 2{,}5827 \times m + y$
Moon's apparent Semidiameter.....................	$16.10{,}34 - 0{,}0007 \times t + 0{,}9703 \times n.$

Apparent Distance of Star from Moon's center:

$$15'.59''{,}33 + 0''{,}3834\,\{+e - x - 0{,}6273 \times t + 2{,}3816 \times m\}$$
$$+ 0''{,}9084\,\{y - 0{,}0984 \times t + 2{,}5827 \times m\} - 0''{,}9080 \times f.$$

Final Equation:

$$+11''{,}01 = +0{,}3834 \times e - 0{,}9080 \times f - 0{,}3834 \times x + 0{,}9084 \times y - 0{,}3292 \times t + 3{,}2592 \times m - 0{,}9703 \times n.$$

Reappearance of *f* Pleiadum, Dec. 27, $15^{h}.59^{m}.16^{s}{,}62 + t^{s}$ Greenwich Mean Solar Time.

Moon's Geocentric Right Ascension in arc	$55^{\circ}.49'.50''{,}85 + 0''{,}6224 \times t + x''$
Moon's Geocentric N.P.D.	$65.47.\ 4{,}11 - 0{,}1569 \times t + y$
Moon's Horizontal Equatoreal Parallax	$59.\ 2{,}10 \times (1 + 0{,}001 \times m)$
Moon's Geocentric Semidiameter	$16.\ 5{,}22 \times (1 + 0{,}001 \times n)$
Star's Right Ascension in arc......................	$54.54.14{,}55 + e''$
Star's N.P.D.	$66.26.27{,}90 + f.$
Moon's apparent Right Ascension in arc.........	$55^{\circ}.10'.49''{,}42 + 0''{,}6538 \times t - 2''{,}3414 \times m + x''$
Moon's apparent N.P.D............................	$66.32.19{,}30 - 0{,}0976 \times t + 2{,}7152 \times m + y$
Moon's apparent Semidiameter.....................	$16.\ 8{,}79 - 0{,}0006 \times t + 0{,}9688 \times n.$

Apparent Distance of Star from Moon's center:

$$16'.17''{,}62 + 0''{,}8557\,\{-e + x + 0{,}6538 \times t - 2{,}3414 \times m\}$$
$$+ 0''{,}3603\,\{y - 0{,}0976 \times t + 2{,}7152 \times m\} - 0''{,}3585 \times f.$$

Final Equation:

$$-8''{,}83 = -0{,}8557 \times e - 0{,}3585 \times f + 0{,}8557 \times x + 0{,}3603 \times y + 0{,}5249 \times t - 1{,}0253 \times m - 0{,}9688 \times n.$$

Disappearance of *c* Geminorum, Dec. 31, $8^h.53^m.1^s,73 + t^s$ Greenwich Mean Solar Time.

Moon's Geocentric Right Ascension in arc	$112^\circ.49'.23'',25 + 0'',6099 \times t + x''$
Moon's Geocentric N.P.D.	$63.29.32,21 + 0,1041 \times t + y$
Moon's Horizontal Equatoreal Parallax	$57.14,52 \times (1 + 0,001 \times m)$
Moon's Geocentric Semidiameter	$15.35,86 \times (1 + 0,001 \times n)$
Star's Right Ascension in arc	$113.34.39,15 + e''$
Star's N.P.D.	$63.50.10,30 + f.$

Moon's apparent Right Ascension in arc	$113^\circ.23'.28'',17 + 0'',5277 \times t + 2'',0449 \times m + x''$
Moon's apparent N.P.D.	$64.\ 2.18,61 + 0,0482 \times t + 1,9664 \times m + y$
Moon's apparent Semidiameter	$15.45,68 + 0,0005 \times t + 0,9457 \times n.$

Apparent Distance of Star from Moon's center:

$$15'.45'',38 + 0'',5728\,\{+e - x - 0,5277 \times t - 2,0449 \times m\}$$
$$+ 0'',7709\,\{y + 0,0482 \times t + 1,9664 \times m\} - 0'',7699 \times f.$$

Final Equation:

$$+0'',30 = +0,5728 \times e - 0,7699 \times f - 0,5728 \times x + 0,7709 \times y - 0,2656 \times t + 0,3446 \times m - 0,9457 \times n.$$

Reappearance of *c* Geminorum, Dec. 31, $9^h.30^m.36^s,39 + t^s$ Greenwich Mean Solar Time.

Moon's Geocentric Right Ascension in arc	$113^\circ.12'.17'',25 + 0'',6089 \times t + x''$
Moon's Geocentric N.P.D.	$63.33.30,60 + 0,1056 \times t + y$
Moon's Horizontal Equatoreal Parallax	$57.13,52 \times (1 + 0,001 \times m)$
Moon's Geocentric Semidiameter	$15.35,59 \times (1 + 0,001 \times n)$
Star's Right Ascension in arc	$113.34.39,15 + e''$
Star's N.P.D.	$63.50.10,30 + f.$

Moon's apparent Right Ascension in arc	$113^\circ.42'.49'',71 + 0'',5051 \times t + 1'',8325 \times m + x''$
Moon's apparent N.P.D.	$64.\ 4.17,72 + 0,0556 \times t + 1,8471 \times m + y$
Moon's apparent Semidiameter	$15.46,54 + 0,0005 \times t + 0,9465 \times n.$

Apparent Distance of Star from Moon's center:

$$15'.55'',18 + 0'',4146\,\{-e + x + 0,5051 \times t + 1,8325 \times m\}$$
$$+ 0'',8874\,\{y + 0,0556 \times t + 1,8471 \times m\} - 0'',8870 \times f.$$

Final Equation:

$$-8'',64 = -0,4146 \times e - 0,8870 \times f + 0,4146 \times x + 0,8874 \times y + 0,2582 \times t + 2,3989 \times m - 0,9465 \times n.$$

Hourly Meteorological Observations made at the Cambridge Observatory near the time of the Vernal Equinox, 1838.

Day and Hour.		Barom.	Att. Ther.	Exter. Ther.	Direction of Wind.	Strength of Wind. 0–6	Clouds. 0–10	Remarks.
	h.	Inches.	°	°				
Mar. 20.	18	29,300	41,4	34,0	W. S. W.	3	0	Very fine and clear; fine sunrise.
(a)	22	,318	42,8	42,2	S. W.	3	1	... ... ; a few cumuli in W. horizon.
	23	,308	45,4	44,7	S. S. W. to W.	3	6	Fine; air very clear; cumuli and nimbi.
Mar. 21.	0	,300	45,7	47,0	S. S. W. to W.	3,4	9	Cloudy; boisterous wind.
	1	,304	46,4	47,8	S. S. W. to W.	3,4	8	... ... ; rain at 0h. 30m.
	2	,320	45,4	49,0	S. W.	3,4	5	Clouds heavier but not so numerous; rough wind.
	3	,320	45,6	48,4	S. W.	3,4	6	... ... ; fine cumuli.
	4	,318	45,4	47,2	S. W.	3,4	9	Clouds dark and threatening.
	5	,332	44,6	44,4	W. S. W.	2,3	9	... ... ; shower of rain.
	6	,350	44,2	42,0	W.	1	10	... ... ; rain and hail showers.
	7	,354	43,0	41,3	W. by S.	1	10	... ... , but broken about the zenith.
	8	,354	42,5	40,2	W.	1	10	Completely cloudy; very dark.
	9	,396	43,0	35,8	W.	1	7	Clouds lighter and broken; wind very steady.
	10	,400	43,0	35,0	W.	1	7	Clouds radiate from W. horizon.
(b)	11	,410	38,9	35,0	W.	1,2	1	Few clouds near W. and N. horizon.
	12	,410	37,6	34,0	W.	1,2	2	Bank of clouds stretching from W. to N.E. with light above, like an aurora.
	13	,418	37,4	34,9	W. by S.	1,2	10	Quite cloudy with gentle rain.
(c)	14	,420	38,8	34,5	W. by S.	2	10	Quite cloudy with more rain.
	15	,422	39,9	34,7	W. by N.	2	10	... ...
	16	,430	40,5	35,8	W. N. W.	1,2	10	... and raining lightly; atmosphere thick.
	17	,440	40,5	36,4	N. W.	1,2	10	Cloudy but no rain.
	18	,446	40,5	37,0	N. W.	2	10	... ... ; air much clearer.
	19	,454	41,0	37,2	N. W.	1,2	10	... ...
	20	,480	41,0	37,4	N. W. by N.	1,2	10	Wind gradually getting northward.
	21	,518	40,6	38,0	N. N. W.	1	10	... ...
	22	,530	40,0	36,2	N.	1	10	Raining fast since 21h. 30m; cold.
	23	,542	40,5	37,4	N. N. W.	1,2	10	Wind stronger; no rain since 22h. 30m.
Mar. 22.	0	,550	40,8	39,2	N.	1,2	10	Clouds broken but still heavy.
	1	,558	41,0	38,8	N.	1,2	10	Clouds more condensed; brisk wind.
	2	,562	41,0	38,5	N.	1,2	10	... ... ; good breeze.
	3	,568	41,0	37,8	N.	2	10	Raining lightly.
	4	,576	41,0	37,4	N.	1,2	10	... ...
	5	,590	40,6	37,0	N.	1,2	10	Cold wind.
	6	29,608	40,4	37,0	N.	2	10	... ; still quite cloudy.

(a) The observations were not made in the interval between 18^h and 22^h.

(b) From this hour the strength of the wind was measured by an anemometer, which, being situated to the South of the Dome does not receive the whole of the North wind.

(c) The shutters of the circle room were closed after 13^h, which accounts for the rise of temperature, as indicated by the attached Thermometer.

HOURLY METEOROLOGICAL OBSERVATIONS MADE AT THE CAMBRIDGE OBSERVATORY NEAR THE TIME OF THE SUMMER SOLSTICE, 1838.

Day and Hour.		Barom.	Att. Ther.	Exter. Ther.	Direction of Wind.	Strength of Wind 0–6.	Clouds 0–10.	Remarks.
	h.	Inches.	°	°				
June 20.	18	29,470	60,6	61,6	S.W.	3	10	Quite cloudy; nimbi.
	19	,478	60,8	62,0	S.W.	3	10	Light rain and boisterous wind.
	20	,518	60,6	63,0	W.S.W.	2,3	10	Clouds breaking.
	21	,560	60,6	63,6	W.	2	10	Detached nimbi; wild.
	22	,596	60,7	63,6	W. by S.	2	9	Break in the N.W.; clouds lighter.
(*a*)	23				W. by S.	2	5	
June 21 (*a*)	0				W.S.W.	2,3	4	
	1	,642	63,2	69,0	W.S.W.	2,3	6	Fine; cumuli.
	2	,652	63,6	71,2	W.S.W.	2,3	4	Fine cumuli with rapid scud.
	3	,664	63,6	67,4	W.S.W.	2,3	3	... ...
	4	,662	63,4	69,0	W.S.W.	2,3	3	... ...
	5	,658	64,0	68,4	W.S.W.	2,3	4	... ... ; rain clouds in S. horizon.
	6	,658	63,6	70,4	W.S.W.	2,3	6	... ; rain clouds in horizon from S. to W.
	7	,658	62,0	68,4	S.W.	2,3	6	Some flying showers during the last hour: two small portions of two large rainbows visible; every appearance of rain in S.W.
(*b*)	8	,680	61,6	65,3	S.W.w.	1,2	4	Small part of rainbow still visible in S.E., that portion of sky being cloudy; Sun setting in low bank.
	9	,684	58,6	61,4	S.W.w.	2	2	Nearly clear.
	10	,688	57,0	56,4	S.W.w.	2	7	Clouds rising rapidly from S.W.; stratus and cirri.
	11	,698	56,7	53,7	S.W.w.	2	2	A few scattered clouds, chiefly towards the north.
(*c*)	12	,708	56,6	53,0	S.W.w.	2	1	Clear, except a few light clouds to the N. and W.
	13	,732	55,9	51,6	S.W.w.	2	0	Clear.
	14	,736	54,7	50,2	S.W.w.	2	0	Continues quite clear.
	15	,742	54,2	50,0	S.W.w.	1,2	1	A few clouds rising in the S.W.
	16	,750	54,4	50,0	S.W.w.	2	3	... ... ; clear Sun-rise.
	17	,760	54,6	53,4	S.W.w.	2	5	Clouds spreading; nimbi.
	18	,774	55,5	58,0	S.W.w.	2	6	... ... ; cloudy to the S.
	19	,780	56,0	57,6	S.W.w.	2,3	9	Cloudy; wind gusty.
	20	,812	57,6	59,0	S.W.w.	2,3	10	... ; rain southward.
	21	,812	58,6	61,6	S.W.w.	2,3	5	Shower during last hour; nimbi and cumuli.
	22	,822	59,8	64,6	S.W.w.	2,3	10	Showery; much rain to S.; very cloudy.
	23	,826	59,6	63,8	S.W.w.	2,3	8	... ; rain clouds now in N.E.
June 22.	0	,808	61,6	66,0	S.W.w.	2,3	8	... ; raining from a wild dark cloud.
	1	,808	60,0	66,0	S.W.w.	2,3	3	Fine; scattered cumuli: gusty wind.
	2	,814	60,5	64,6	S.W.w.	3,4	6	Shower coming; gale of wind; squally.
	3	,826	60,8	65,0	S.W.w.	2,3	6	Fine; cumuli; showers rising; several during last hour.
	4	,840	61,0	66,6	S.W.w.	2,3	3	.. ; scattered cumuli.
	5	,866	62,8	69,4	S.W.w.	2,3	5	.. ; scud flies rapidly.
	6	29,890	62,4	68,6	S.W.w.	2,3	5	... ... ; rain clouds passing.

(*a*) The Barometer and Thermometer observations were inadvertently omitted at these two hours.

(*b*) S.W.w. means S.W. by W., that is, a little to the West of S.W.

(*c*) From this hour the strength of the wind is measured by an anemometer. The wind was remarkably steady in its direction during the latter part of the observations, and the barometer rose very gradually.

HOURLY METEOROLOGICAL OBSERVATIONS MADE AT THE CAMBRIDGE OBSERVATORY NEAR THE TIME OF THE AUTUMNAL EQUINOX, 1838.

Day and Hour.		Barom.	Att. Ther.	Exter. Ther.	Direction of Wind.	Strength of Wind 0–6.	Clouds 0–10.	Remarks.
	h.	Inches.	°	°				
Sept. 21.	1	29,866	59,4	58,2	N. W.	0,1	6	Fine; cumuli and cumulo-stratus.
	2	,866	59,8	60,8	N. W.	1	8	Clouds much thicker and heavier, particularly in S. horizon.
	3	,866	60,0	61,0	N. W.	1	8	Storm clouds at all parts, particularly to S.E. where it appears to be raining.
	4	,875	60,2	61,2	N. W.	1	8	Storm clouds disappearing in S.E.; cirro-cumuli and cumulo-stratus.
	5	,904	59,3	57,2	S. S. E.	1	9	Raining heavily in all the E. quarter; to the W. fine though cloudy.
	6	,914	58,4	53,6	S. E.	1	7	Horizon misty, particularly E.; cloudy Sun-set.
	7	,912	57,6	52,1	S. E.	1	3	Horizon cloudy, clear in other parts.
	8	,924	55,0	48,0	E.	0,1	2	... ... ; strong indication of an aurora; 2 or 3 steady streamers with red light.
	9	,924	54,8	48,0	Calm.	0	1	Good auroral arch with light above; very clear.
	10	,924	54,0	45,9	W. N. W.	0,1	1	... ... streamers; very clear.
	11	,944	51,7	41,8	Calm.	0	0	Auroral arch gone, but diffused light remaining.
	12	,942	50,3	40,2	Calm.	0	0	Auroral light quite gone.
	13	,950	49,0	40,1	W.	0,1	0	Misty about the horizon; so little wind that its direction is scarcely discernible.
	14	,954	48,4	38,6	E. S. E.	0,1	0	The sky very clear and dark.
	15	,950	47,1	37,1	S. E.	0,1	0	... ... : Sirius rising very bright.
	16	,958	47,9	36,6	S. E.	0,1	0	Perfectly clear.
	17	,972	48,3	36,4	E. S. E.	0,1	0	... ; thin cloud in E. horizon. Venus brilliant.
	18	,972	48,1	37,8	E.	0,1	0	... ; heavy dew.
	19	,976	48,2	40,2	S. S. E.	0,1	0	...
(*a*)	20	,982	47,8	43,6	S. w.	0,1	0	...
	21	29,994	50,2	48,4	S. w.	0,1	0	...
	22	30,012	53,3	52,0	S. w.	0,1	0	...
	23	,016	54,5	54,4	S. w.	0,1	0	...
Sept. 22.	0	30,000	56,0	56,4	S.	1	2	Very fine; cirri and cumuli.
	1	29,994	57,4	59,5	S. S. E.	1	4	... ...
	2	,986	58,5	62,0	S. W.	1,2	5	... ...
	3	,982	59,6	64,2	S. S. W.	1,2	4	... ; cirri ; sky misty.
	4	,972	55,7	60,2	S. W.	1,2	6	... ... ; very misty, particularly to the E.
	5	,968	55,0	59,0	S. W.	1,2	6	... ... ; Horizon cloudy.
	6	29,966	54,0	56,5	S. E.	0,1	9	Fine; cloudy; sun-set behind a bank of clouds, the reflection of its light on the clouds very fine.

(*a*) S. w. means a little to the West of S.

APPENDIX.

THE

FIRST CAMBRIDGE CATALOGUE

OF

726 STARS.

ARRANGED BY

G. B. AIRY, Esq.

ASTRONOMER ROYAL.

FROM THE

"MEMOIRS OF THE ROYAL ASTRONOMICAL SOCIETY,"

Vol. XI.

LONDON:

PRINTED BY

MOYES AND BARCLAY, CASTLE STREET, LEICESTER SQUARE.

M.DCCC.XXXIX.

A Catalogue of 726 *Stars, deduced from the Observations made at the Cambridge Observatory, from* 1828 *to* 1835; *reduced to January* 1, 1830.

I HAVE the honour to offer to the Royal Astronomical Society a Catalogue of Stars deduced from the whole of the observations of stars made at the Cambridge Observatory, while I was director of that establishment, or from 1828 to 1835 (both years included). In anticipation of the similar catalogues which may be expected from that active institution, I beg leave to call this " The First Cambridge Catalogue."

The state of reduction in which the places of the stars had been published in each of the annual volumes of *Observations,* left little to be done for the formation of this catalogue, except the combination of the results of the different years. This was done by applying to the mean of each year's results the annual variation in the Astronomical Society's Catalogue (or variation computed by the same formulæ), so as to bring the place up to Jan. 1, 1830; and then taking the mean of the different results for 1830, giving to each year a weight proportioned to the number of observations. The epoch 1830 was adopted, not only because it is a round number, and the epoch of the Astronomical Society's and Mr. POND's Catalogues, but also because it is included in the years over which these observations are extended.

For three stars near the pole, the precession by which the reductions to 1830 have been made, has been computed for the time intermediate to the year of observation and 1830.

The mean year of observation has been found by taking the mean of the different years in which each star was observed (giving to each a weight proportioned to the number of observations), and then adopting the nearest integer. I have thought it desirable to give this year (though not the same as the adopted epoch of the catalogue), in order that, where the variations used in bringing up the catalogue are sensibly wrong, means may exist for readily applying a correction in any subsequent use of the catalogue.

In the first few years, the means of the determinations in right ascension had not been taken in the printed *Observations:* and this was the principal labour in the preparation of the results in right ascension.

The right ascensions, as reduced to 1830, were all diminished by $0^{s},14$. The equinox from which they are reckoned is thus the same as the equinox adopted for the reduction of the observations of the Sun, Moon, and Planets, in a paper already printed in the Society's *Memoirs*.

In the reduction of the observations of north polar distance, equal weights are given to direct observations and observations by reflexion, whether above or below the pole. The observations of *α Cygni* only below the pole are considered unfit to be combined in the result. The observations in north polar distance are corrected when necessary for the error in the barometer, by the table in the addendum to the *Observations* of 1834.

The precessions inserted in the catalogue are entirely geometrical, without any proper motion. They are computed by the following formulæ: viz.

Precession in right ascension $= 3^{s},068 + \sin \text{R.A.} \cot \text{N.P.D.} \times$ No. (log $= 0{\cdot}1259$).

Precession in north polar distance $= \cos \text{R.A.} \times$ No. (log $= 1{\cdot}3020$).

The following observations have been omitted in the reductions: viz.

Transit of η Canis Majoris,	1829, March 25.
Transit of ζ Ophiuchi,	1829, May 7.
Transit of A.S.C. 2457,	1830, August 3.
Transit of γ Cephei,	1829, May 17.

Circle observation R of Piazzi, ii. 64,	1835, Nov. 6.
Circle observation R of β Virginis,	1835, April 10.
Circle observation R of δ Ursæ Majoris, S.P.,	1833, Sept. 19, Oct. 19, and Oct. 26.
Circle observation D of φ Sagittarii,	1835, Sept. 1.
Circle observation R of β Corvi,	1835, April 28.

The principal discordances from the places of the Astronomical Society's Catalogue, are the following: viz.

	Diff. in R.A.	Diff. in N.P.D.
A. S. C. 79	$+1\overset{s}{,}76$	$+38\overset{''}{\cdot}6$
γ Cassiopeiæ	+0,99	
A. S. C. 429	+0,91	
ν Geminorum	+1,63	
33 Geminorum	+0,80	
μ Leonis	+0,70	
ξ Virginis	+0,87	
ζ Ursæ Majoris	+1,40	
2 Libræ	+0,90	
θ Boötis	+1,12	
A. S. C. 1651	−1,85	
β Herculis	+0,70	
ξ Ophiuchi	+0,69	
δ Ursæ Minoris	+2,14	
29 Aquarii	−1,09	
28 Pegasi	+0,59	
42 Aquarii	+0,57	
μ Pegasi	+0,81	
κ Piscium	+0,81	
11 Piscium	+0,46	
γ Cephei	+1,56	
27 Piscium	+0,62	
29 Piscium	+0,61	

Royal Observatory Greenwich,
December 14, 1838.

G. B. AIRY.

No. of Star.	Name.	Mean Year for R.A.	Whole No. of Obs. in R.A.	Mean R.A. January 1, 1830.	Annual Precession.	Mean Year for N.P.D.	Whole No. of Obs. in N.P.D.	Mean N.P.D. January 1, 1830.	Annual Precession.
				h m s	s			° ′ ″	″
1	11 Cassiopeiæ β ..	1829	4	0 0 9,32	+3,069	1833	6	31 47 16·63	−20,043
2	88 Pegasi γ	..	..	....	..	1835	2	75 45 41·68	20,039
3	A. S. C. 19 Piazzi, o. 33	1831	3	9 3,98	3,069	1834	2	89 15 24·27	20,027
4	∗ R.A. $0^h 10^m 15^s$.	..	..	....	..	1834	4	31 48 19·31	20,027
5	44 Piscium	1831	3	16 41,58	3,070	1834	3	89 0 8·45	19,990
6	10 Ceti	1831	3	17 54,36	3,066	1834	2	90 59 30·30	19,981
7	12 Ceti	1834	4	21 21,77	3,057	1834	2	94 53 50·29	19,956
8	15 Cassiopeiæ κ ...	1829	3	23 24,16	3,324	1834	6	28 0 27·28	19,938
9	13 Ceti	..	..	....	..	1834	1	94 31 48·70	19,909
10	A. S. C. 51 Piazzi, o. 120	1832	6	26 49,46	3,064	1833	2	91 26 25·99	19,905
11	18 Cassiopeiæ α ..	1829	11	30 54,55	3,330	1834	134	34 23 46·55	19,861
12	16 Ceti β	1831	12	35 3,23	2,998	1834	4	108 55 13·64	19,809
13	A. S. C. 79 Piazzi, o. 189	1831	2	39 28,40	3,086	1834	2	85 35 45·51	19,747
14	63 Piscium δ	1829	4	39 52,15	3,095	1834	2	83 20 29·45	19,740
15	20 Ceti	1834	9	44 19,42	3,059	1834	9	92 4 7·67	19,669
16	27 Cassiopeiæ γ ..	1829	3	46 30,72	3,531	1834	44	30 12 19·80	19,632
17	71 Piscium ε	..	..	....	..	1835	2	83 1 38·77	19,486
18	26 Ceti	1834	2	55 4,48	3,071	1833	2	89 32 47·09	19,467
19	Polaris	1832	786	59 30,88	15,371	1834	708	1 35 51·22	19,375
20	80 Piscium e	1832	3	0 59 37,09	3,097	1834	1	85 15 6·45	19,368
21	33 Ceti	1833	3	1 1 49,05	3,078	1833	4	88 27 41·49	19,318
22	89 Piscium f	1834	2	9 2,26	3,087	1834	3	87 16 59·36	19,140
23	A. S. C. 144 Piazzi, i. 57	1831	2	13 52,09	3,074	1834	2	89 9 48·82	19,011
24	96 Piscium	1829	3	20 11,46	3,120	1834	3	83 35 9·91	18,829
25	98 Piscium μ	1833	11	21 17,23	3,111	1834	6	84 44 7·66	18,795
26	A. S. C. 164 ..	1830	2	21 40,42	2,836	1834	2	116 29 58·08	18,785
27	∗ N.P.D. 93° 31′.	1830	2	22 16,63	3,039	..	..	......	....
28	∗ N.P.D. 93° 31′ 93 45	1832	2	23 27,17	3,039	..	..	......	....
29	A. S. C. 183 Piazzi, i. 144	1831	3	31 38,24	3,140	1834	3	82 6 14·71	18,462
30	106 Piscium ν	1833	15	32 35,51	3,111	1834	7	85 22 32·08	18,429
31	110 Piscium ο	1832	13	36 25,61	3,148	1834	6	81 42 3·89	−18,295
32	∗ N.P.D. 81° 34′	1831	2	40 13,08	3,152	..	..	......	....
33	∗ N.P.D. 15° 19′	1830	1	41 56,00	5,167	..	..	......	....
34	45 Cassiopeiæ ε ..	1830	4	1 42 15,20	+4,191	..	..	......	....

No. of Star.	Name.	Mean Year for R.A.	Whole No. of Obs. in R.A.	Mean R.A. January 1, 1830.	Annual Precession.	Mean Year for N.P.D.	Whole No. of Obs. in N.P.D.	Mean N.P.D. January 1, 1830.	Annual Precession.
				h m s	s			° ′ ″	″
35	* N.P.D. 15° 25′	1830	4	1 42 41,27	+5,155	..	..	....	....
36	* N.P.D. 15° 30′	1829	2	42 43,20	5,155	..	..	....	....
37	111 Piscium ξ	1835	3	44 45,71	3,092	1834	1	87 39 17·53	−17,985
38	* N.P.D. 15° 19′	1830	3	46 37,89	5,255	..	..	....	....
39	49 Cassiopeiæ	1829	4	49 31,92	5,408	..	..	....	....
40	A. S. C. 214 Piazzi, i. 225	1834	8	51 4,59	3,125	1833	2	84 47 34·34	17,735
41	113 Piscium α^2	1833	5	53 15,47	3,090	1834	2	88 3 39·25	17,645
42	57 Andromedæ γ ..	1829	3	53 29,87	3,630	1834	2	48 29 23·97	17,635
43	13 Arietis α	1833	194	1 57 36,48	3,342	1834	34	67 20 44·03	17,461
44	65 Ceti ξ^1	1833	12	2 4 0,02	3,165	1833	6	81 57 17·56	17,180
45	64 Andromedæ ...	..	..	....	..	1835	1	40 45 15·39	16,677
46	24 Arietis ξ^1	1830	2	15 43,05	3,197	1834	2	80 9 47·64	16,630
47	73 Ceti ξ^2	1832	13	19 7,82	3,171	1833	3	82 18 23·66	16,461
48	78 Ceti ν	1834	1	26 57,70	3,136	1834	1	85 9 10·64	16,062
49	31 Arietis	1830	2	27 22,43	3,234	1834	2	78 17 38·07	16,040
50	85 Ceti..........	1830	2	33 20,36	3,214	1834	1	79 59 17·25	15,722
51	86 Ceti γ	..	..	....	..	1835	2	87 29 8·07	15,658
52	38 Arietis........	1834	7	35 42,57	3,242	1833	2	78 16 28·87	15,593
53	87 Ceti μ	1833	8	35 45,85	3,207	1834	4	80 36 29·71	15,590
54	* N.P.D. 86° 41′	1832	1	36 26,98	3,117	..	..	....	....
55	42 Arietis π	1835	3	39 49,11	3,326	..	..	....	....
56	43 Arietis σ	1833	2	42 7,06	3,291	1833	2	75 37 24·91	15,234
57	48 Arietis ε	1835	2	49 30,24	3,408	..	..	....	....
58	91 Ceti λ	1834	4	50 36,80	3,199	1834	1	81 46 30·82	14,741
59	23 Persei γ	1829	2	52 32,07	4,273	.	..	....	....
60	92 Ceti α	1833	116	53 24,10	3,123	1834	13	86 34 56·48	14,575
61	* N.P.D. 77° 28′	1834	6	57 4,35	3,276	..	..	....	....
62	26 Persei β	1830	4	2 57 8,26	3,859	1834	2	49 42 19·72	14,349
63	57 Arietis δ	1834	1	3 1 55,34	3,398	..	..	....	....
64	A. S. C. 350 Piazzi, iii. 4	1833	6	2 2,42	3,278	1833	2	77 36 8·84	14,046
65	58 Arietis ζ	1835	1	5 8,68	3,427	1835	1	69 35 28·33	13,851
66	Piazzi, iii. 38 ..	1833	2	11 5,81	3,427	1833	5	70 6 38·63	13,495
67	33 Persei α	1830	34	12 13,66	4,221	1834	39	40 45 4·75	13,397
68	2 Tauri ξ	1833	7	3 17 58,01	+3,231	1834	7	80 51 56·51	−13,019

No. of Star.	Name.	Mean Year for R.A.	Whole No. of Obs. in R.A.	Mean R.A. Jan. 1, 1830.	Annual Precession.	Mean Year for N.P.D.	Whole No. of Obs. in N.P.D.	Mean N.P.D. January 1, 1830.	Annual Precession.
				h m s	s			° ′ ″	″
69	* R.A. $3^h\ 21^m\ 5^s$.	..	..	....	..	1835	1	77 41 10·08	−12,785
70	5 Tauri *f*	1833	5	3 21 29,83	+3,293	1834	6	77 39 7·53	12,783
71	A. S. C. 390 Piazzi, iii. 103	1832	7	29 49,53	3,371	1833	2	74 1 22·26	12,214
72	23 Eridani δ......	..	..	....	..	1835	2	100 20 32·45	11,844
73	* N.P.D. 22° 2′ ..	1830	2	35 7,81	5,733	..	..	....	....
74	25 Tauri η	1835	1	37 23,62	3,542	1834	2	66 25 39·93	11,682
75	* N.P.D. 79° 18′ .	1830	2	37 29,90	3,273	..	..	....	....
76	30 Tauri *e*	1832	3	38 57,38	3,273	..	..	....	....
77	*	1830	6	41 55,26	5,772	1834	2	22 9 3·05	11,355
78	A. S. C. 429 Piazzi, iii. 187	1833	2	43 27,51	3,402	1833	2	73 11 10·02	11,248
79	45 Persei ε	..	..	....	..	1835	2	50 29 21·36	11,028
80	*	1833	2	47 14,69	3,494	1833	7	69 10 34·89	10,948
81	35 Tauri λ	1835	4	51 16,22	3,309	1834	1	77 59 49·01	10,676
82	37 Tauri A′	1834	4	54 39,37	3,520	1833	5	68 23 23·16	10,424
83	A. S. C. 454 Piazzi, iii. 249	1830	2	58 15,91	3,418	1834	2	73 7 17·83	10,153
84	* R.A. $3^h\ 59^m\ 0^s$.	..	..	....	..	1834	2	73 9 54·84	10,076
85	43 Tauri ω^1	1833	2	3 59 16,29	3,469	1833	2	70 50 50·73	10,076
86	* R.A. $4^h\ 2^m\ 50^s$.	..	..	....	..	1834	1	73 10 2·11	9,790
87	48 Tauri	1832	5	4 6 7,71	3,382	..	..	....	....
88	50 Tauri ω^2	1834	3	7 18,58	3,500	1835	1	69 50 52·07	9,463
89	51 Tauri	1833	2	8 20,15	3,525	1833	5	68 50 37·06	9,384
90	53 Tauri	1834	4	9 25,53	3,516	1833	2	69 16 34·22	9,300
91	54 Tauri γ	1832	8	10 7,74	3,390	1834	6	74 47 24·05	9,245
92	* N.P.D. 21° 1′ ..	1830	7	12 6,60	6,168	..	..	....	....
93	61 Tauri δ^1	1835	1	13 8,43	3,436	1835	1	72 51 50·08	9,011
94	73 Tauri π	1831	2	17 0,49	3,375	..	..	....	....
95	74 Tauri ε	1834	8	18 42,02	3,479	..	..	....	....
96	75 Tauri	1831	6	18 43,85	3,414	..	..	....	....
97	77 Tauri θ^1	1832	7	18 52,33	3,405	1834	4	74 25 20·66	8,560
98	78 Tauri θ^2	1832	6	18 57,87	3,403	1834	2	74 30 48·19	8,552
99	* N.P.D. 74° 11′ .	1831	4	19 16,70	3,411	..	..	....	....
100	A. S. C. 516 Piazzi, iv. 99	1831	5	20 50,24	3,412	..	..	....	....
101	85 Tauri	1833	7	22 9,68	3,405	..	..	....	....
102	Aldebaran	1832	269	4 26 10,49	+3,423	1834	106	73 50 24·32	− 7,979

No. of Star.	Name.	Mean Year for R.A.	Whole No. of Obs. in R.A.	Mean R.A. Jan. 1, 1830.	Annual Precession.	Mean Year for N.P.D.	Whole No. of Obs. in N.P.D.	Mean N.P.D. January 1, 1830.	Annual Precession.
				h m s	s			° ′ ″	″
103	94 Tauri τ	1835	2	4 32 3,02	+3,584	..	..	....	....
104	97 Tauri *i*	1834	11	41 26,22	3,490	..	..	....	....
105	102 Tauri ι	1835	3	52 56,55	3,568	1835	2	68 39 39·48	−5,782
106	107 Tauri........	1832	3	4 58 48,89	3,528	..	..	....	....
107	Capella	1830	44	5 4 8,65	4,402	1834	125	44 11 7·12	4,837
108	Rigel........	1834	77	6 22,29	2,876	1834	4	98 24 16·22	4,647
109	A. S. C. 626 ..	1830	2	9 51,79	2,750	..	..	....	....
110	112 Tauri β	1833	64	15 33,12	3,779	1834	55	61 32 41·67	3,863
111	24 Orionis γ	1830	3	16 1,03	3,210	..	..	....	....
112	115 Tauri........	1832	3	17 15,19	3,490	..	..	....	....
113	119 Tauri........	1832	3	22 15,00	3,508	1834	2	71 32 25·21	3,287
114	34 Orionis δ.....	1830	5	23 19,50	3,058	...	..	....	....
115	123 Tauri ζ	1834	6	27 29,27	3,577	1834	3	68 58 9·70	2,835
116	46 Orionis ε.....	1830	4	27 35,42	3,038	1835	2	91 19 2·44	2,825
117	50 Orionis ζ.....	1830	5	32 11,05	3,021	1835	2	92 2 23·47	2,427
118	Columbæ α...	..	..	....	..	1833	2	124 10 6·95	2,313
119	130 Tauri........	1832	3	37 31,48	3,491	1834	1	72 20 35·52	1,962
120	132 Tauri........	1835	2	38 35,11	3,674	1835	2	65 29 54·00	1,871
121	31 Camelopardali	..	..	....	..	1835	14	30 9 45·94	1,770
122	30 Aurigæ ξ.....	..	..	....	..	1834	3	34 20 40·20	1,694
123	136 Tauri........	1834	2	42 38,63	3,763	1834	2	62 26 11·71	1,517
124	58 Orionis α.....	1832	200	45 58,28	3,241	1834	38	82 37 56·28	1,226
125	34 Aurigæ β	...	..	....	..	1834	4	45 4 47·74	1,131
126	139 Tauri........	1835	2	47 26,88	3,717	1835	3	64 4 34·74	1,097
127	141 Tauri........	1835	5	51 25,83	3,618	..	..	....	....
128	1 Geminorum ..	1834	2	53 47,27	3,642	1834	1	66 44 10·39	0,543
129	2 Geminorum ..	1835	2	56 26,84	3,653	1835	3	66 21 17·57	−0,311
130	Piazzi, v. 339 .	1830	2	5 58 54,37	2,804	..	..	....	....
131	A. S. C. 765 ..	1830	2	6 0 27,58	2,805	..	..	....	....
132	1 Lyncis.......	..	..	....	..	1835	14	28 26 33·44	+0,195
133	7 Geminorum η..	1834	2	4 36,91	3,623	1834	1	67 26 58·67	0,403
134	71 Orionis	1831	5	4 50,67	3,533	..	..	....	....
135	* N.P.D. 70° 48′	1831	3	6 30,92	3,534	..	..	....	....
136	A. S. C. 784 } Piazzi, vi. 43 }	1835	2	6 7 41,57	+3,756	1835	4	62 43 58·49	+0,672

No. of Star.	Name.	Mean Year for R.A.	Whole No. of Obs. in R.A.	Mean R.A. January 1, 1830.	Annual Precession.	Mean Year for N.P.D.	Whole No. of Obs. in N.P.D.	Mean N.P.D. January 1, 1830.	Annual Precession.
				h m s	s			° ′ ″	″
137	*	1835	1	6 11 11,07	+3,893	1835	3	59 57 59·77	+1,008
138	13 Geminorum μ ...	1834	9	12 40,54	3,623	1834	7	67 24 27·80	1,107
139	* R.A. 6^h 12^m 35^s	..	..	....	..	1835	4	62 44 11·98	1,107
140	* R.A. 6^h 12^m 55^s..	....	..	....	..	1835	7	62 48 23·87	1,130
141	2 Canis Majoris β	1829	2	15 12,97	2,638	1835	1	107 52 38·59	1,329
142	48 Aurigæ	1831	7	17 38,40	3,856	1835	3	59 24 39·43	1,541
143	Hev. 51 Cephei Piazzi, vi. 21	1831	17	18 16,66	30,970	..	...	....	....
144	*	1835	1	18 17,47	3,749	1835	4	62 55 53·27	1,630
145	* R.A. 6^h 18^m 35^s .	...	..	....	..	1835	1	62 52 24·93	1,648
146	18 Geminorum ν ...	1835	1	18 53,27	3,561	1835	1	69 41 18·37	1,648
147	*	1835	1	19 52,27	3,928	1835	2	57 8 1·62	1,762
148	* R.A. 6^h 20^m 15^s .	....	..	....	..	1835	2	57 5 19·75	1,790
149	A. S. C. 808 Piazzi. vi. 126	1830	6	21 21,42	3,918	..	...	....	....
150	* R.A. 6^h 22^m 55^s	..	..	....	..	1835	2	56 51 37·12	2,030
151	* R.A. 6^h 26^m 15^s	..	..	....	..	1835	1	55 23 13·80	2,314
152	24 Geminorum γ ..	1829	2	27 53,46	3,462	....	..	....	....
153	*	1835	1	31 5,61	3,749	1835	4	62 46 6·10	2,740
154	26 Geminorum....	1831	2	32 30,31	3,493	..	..	....	....
155	27 Geminorum ε ..	1834	3	33 28,18	3,693	1835	7	64 42 32·64	2,916
156	* R.A. 6^h 36^m 45^s	..	...	....	..	1835	1	62 45 30·01	3,222
157	Sirius	1830	55	37 39,37	2,678	1834	15	106 29 22·22	3,279
158	*	1835	1	39 26,20	3,744	1835	6	62 48 45·54	3,463
159	33 Geminorum....	1831	2	40 2,45	3,455	..	..	....	....
160	* N.P.D. 9° 12′..	1829	2	40 13,66	11,193	..	..	....	....
161	36 Geminorum *d* ..	1833	2	41 21,42	3,598	1833	1	68 2 49·53	3,597
162	37 Geminorum....	1835	2	44 51,33	3,695	1835	5	64 25 12·69	3,897
163	A. S. C. 859 Piazzi, vi. 281	1831	2	47 48,54	3,496	..	..	....	....
164	39 Geminorum....	1835	3	48 18,40	3,714	1835	4	63 42 14·26	4,192
165	* R.A. 6^h 48^m 15^s	..	..	....	..	1835	2	63 52 1·11	4,245
166	40 Geminorum....	1835	2	48 57,75	3,709	1835	5	63 51 48·24	4,249
167	* N.P.D. 59° 27′.	1829	1	49 18,63	3,839	..	..	....	....
168	* R.A. 6^h 51^m 5^s ..	....	..	....	..	1835	5	63 11 44·23	4,450
169	* R.A. 6^h 51^m 55^s	....	..	....	..	1835	1	63 10 19·06	+4,520
170	21 Canis Majoris ε.	1829	4	6 51 56,52	+2,354	..	..	....	....

No. of Star.	Name.	Mean Year for R.A.	Whole No. of Obs. in R.A.	Mean R.A. January 1, 1830.	Annual Precession.	Mean Year for N.P.D.	Whole No. of Obs. in N.P.D.	Mean N.P.D. January 1, 1830.	Annual Precession.
171	*	1835	1	$6^{h}\ 52^{m}\ 45^{s}{,}93$	$+3^{s}{,}729$	1835	1	$63^{\circ}\ 3'\ 47''{\cdot}54$	$+4''{,}556$
172	43 Geminorum ζ^1 ..	..	..	....	..	1834	3	69 10 6·32	4,681
173	43 Geminorum ζ^2 ..	1832	13	54 1,25	3,562	1834	4	69 11 16·79	4,681
174	A. S. C. 874 Piazzi, vi. 292	...	..	....	..	1834	20	7 17 23,82	4,747
175	* N.P.D. 58° 21′..	1829	1	57 50,77	3,866	..	...	....	....
176	*	1835	3	59 8,70	3,698	1835	2	64 0 2·52	5,113
177	*	1835	4	59 16,25	3,698	1835	3	64 0 3·11	5,123
178	* N.P.D. 57° 30′..	1829	1	6 59 49,07	3,891	..	..	....	....
179	46 Geminorum τ ..	1830	5	7 0 18,72	3,829	..	...	....	....
180	47 Geminorum ...	..	..	....	..	1835	4	62 52 19·84	5,257
181	* N.P.D. 57° 44′	1829	1	2 5,47	3,881	..	...	....	....
182	51 Geminorum	1830	2	3 36,19	3,447	..	...	....	....
183	* N.P.D. 57° 17′..	1829	2	4 59,59	3,892	..	..	....	....
184	* N.P.D. 58° 1′...	1829	2	6 34,10	3,868	..	..	....	....
185	54 Geminorum λ ..	1830	4	8 19,10	3,455	..	..	....	....
186	* N.P.D. 68° 43′.	1832	1	9 7,38	3,565	..	..	....	....
187	* N.P.D. 58° 18′.	1829	2	9 21,02	3,856	..	..	....	....
188	55 Geminorum δ ..	1834	8	9 57,75	3,590	1835	7	67 42 44·84	6,024
189	*	1835	2	11 12,59	3,693	1835	2	63 49 38·33	6,152
190	* N.P.D. 59° 53′.	1829	2	11 47,79	3,805	..	..	....	....
191	56 Geminorum	1832	5	11 54,60	3,550	..	...	....	....
192	57 Geminorum A..	1835	2	13 6,23	3,670	1835	1	64 37 50·85	6,285
193	Piazzi, vii. 89 ..	1829	2	15 10,81	3,865	..	..	....	....
194	* N.P.D. 68° 13′..	1835	2	16 47,04	3,572	..	..	....	....
195	31 Canis Majoris η	1829	3	17 22,37	2,370	..	...	....	....
196	63 Geminorum ...	1835	1	17 38,47	3,572	..	..	....	....
197	62 Geminorum ϱ ...	1829	2	18 9,87	3,858	..	..	....	....
198	*	1835	1	21 22,22	3,634	1835	3	65 39 4·72	6,992
199	* N.P.D. 58° 31′.	1829	1	21 25,50	3,835	..	..	....	....
200	* R.A. $7^{h}\ 21^{m}\ 50^{s}$	...	..	....	..	1835	3	65 41 17·31	7,049
201	* R.A. $7^{h}\ 22^{m}\ 4^{s}$	..	..	....	..	1835	1	66 45 28·48	7,100
202	Castor (2nd star)	1832	265	23 44,43	3,856	1834	21	57 44 50·56	7,161
203	68 Geminorum ...	1830	4	23 54,07	3,430	..	..	....	....
204	*	1835	1	7 24 27,78	+3,657	1835	2	64 40 5·35	+7,259

No. of Star.	Name.	Mean Year for R.A.	Whole No. of Obs. in R.A.	Mean R.A. January 1, 1830.	Annual Precession.	Mean Year for N.P.D.	Whole No. of Obs. in N.P.D.	Mean N.P.D. January 1, 1830.	Annual Precession.
				h m s	s			° ′ ″	″
205	69 Geminorum *ν* . .	. .	. .	. . . .	. .	1835	1	62 44 3·48	+7,300
206	* N.P.D. 57° 12′	1829	2	7 27 15,05	+3,868	. .	. .	. . . .	. . . .
207	* R.A. $7^h 25^m 45^s$	. .	. .	. . . .	. .	1835	1	64 43 40·53	7,346
208	A. S. C. 939 . .	1830	4	29 0,94	3,853	. .	. .	. . . .	. . . .
209	74 Geminorum *f* . .	1831	5	29 39,22	3,471	. .	. .	. . . .	. . . .
210	Procyon	1832	346	30 23,91	3,190	1833	52	84 20 45·35	7,702
211	* N.P.D. 59° 26′	1829	2	31 35,65	3,794	. .	. .	. . . .	. . . .
212	* N.P.D. 58° 29′	1829	2	33 50,27	3,820	. .	. .	. . . .	. . . .
213	77 Geminorum *κ* . .	1835	1	34 10,41	3,634	1835	5	65 12 7·32	8,005
214	* R.A. $7^h 34^m 45^s$	. .	. .	. . . .	. .	1835	1	65 16 47·85	8,064
215	Pollux	1832	337	34 54,13	3,730	1834	24	61 34 14·50	8,064
216	81 Geminorum *g* . .	1832	4	36 16,36	3,486	. .	. .	. . . .	. . . .
217	* N.P.D. 58° 41′	1829	2	37 58,76	3,808	. .	. .	. . . .	. . . .
218	* N.P.D. 59° 19′	1829	1	40 19,40	3,786	. .	. .	. . . .	. . . .
219	* . .	1835	3	40 25,33	3,621	1835	1	65 25 4·27	8,539
220	* N.P.D. 59° 1′	1829	1	40 46,89	3,794	. .	. .	. . . .	. . . .
221	* N.P.D. 59° 38′	1829	1	41 51,06	3,774	. .	. .	. . . .	. . . .
222	83 Geminorum *φ* . .	1835	4	43 4,92	3,686	1834	3	62 48 5·89	8,713
223	* N.P.D. 59° 13′	1829	2	44 4,78	3,784	. .	. .	. . . .	. . . .
224	* N.P.D. 59° 43′	1829	1	45 36,63	3,767	. .	. .	. . . .	. . . .
225	85 Geminorum	1833	2	45 44,03	3,511	1833	2	69 40 28·60	8,922
226	* N.P.D. 65° 5′	1829	1	47 17,54	3,754	. .	. .	. . . .	. . . .
227	* N.P.D. 57° 58′	1829	2	49 18,47	3,811	. .	. .	. . . .	. . . .
228	3 Cancri	1832	6	51 2,25	3,447	. .	. .	. . . .	. . . .
229	5 Cancri	1829	2	51 48,52	3,427	. .	. .	. . . .	. . . .
230	6 Cancri	1835	4	53 3,89	3,701	1835	2	61 44 9·80	9,491
231	* N.P.D. 58° 13′	1829	2	54 53,00	3,794	. .	. .	. . . .	. . . .
232	9 Cancri μ^1	1834	2	56 13,51	3,567	1834	3	66 53 10·06	+9,734
233	* N.P.D. 58° 0′	1829	1	56 56,14	3,798	. .	. .	. . . .	. . . .
234	* N.P.D. 57° 21′	1829	1	58 43,78	3,812	. .	. .	. . . .	. . . .
235	12 Cancri	1830	2	7 59 11,94	3,360	. .	. .	. . . .	. . . .
236	16 Cancri *ζ*	1832	4	8 2 27,13	3,445	. .	. .	. . . .	. . . .
237	15 Cancri	1829	2	2 35,60	3,736	. .	. .	. . . .	. . . .
238	* N.P.D. 57° 20′	1829	2	8 5 5,52	+3,801	. .	. .	. . . .	. . . .

No. of Star.	Name.	Mean Year for R.A.	Whole No. of Obs. in R.A.	Mean R.A. January 1, 1830.	Annual Precession.	Mean Year for N.P.D.	Whole No. of Obs. in N.P.D.	Mean N.P.D. January 1, 1830.	Annual Precession.
				h m s	s			° ′ ″	″
239	17 Cancri β	1829	3	8 7 17,45	+3,262	..	..	....	....
240	* N.P.D. 58° 38′.	1829	2	7 26,70	3,760	..	..	....	....
241	A. S. C. 1013 Piazzi, viii. 42	1833	3	10 25,21	3,506	..	..	....	....
242	* N.P.D. 57° 53′	1829	2	12 18,87	3,771	..	..	....	....
243	* N.P.D. 58° 9′	1829	2	13 28,97	3,761	..	..	....	....
244	20 Cancri d^1	1830	2	13 37,25	3,449	..	..	....	....
245	1 Ursæ Majoris o	1829	3	16 4,25	5,089	..	..	....	....
246	* N.P.D. 58° 53′	1829	2	17 2,94	3,735	..	..	....	....
247	27 Cancri	1830	5	17 19,39	3,327	..	..	....	....
248	* N.P.D. 60° 1′	1829	2	18 48,84	3,702	..	..	....	....
249	* N.P.D. 76° 50′	1830	3	19 45,07	3,330	..	..	....	....
250	* N.P.D. 57° 17′	1829	2	21 35,84	3,768	..	..	....	....
251	31 Cancri θ	1833	4	21 53,52	3,436	1834	2	71 20 14·13	+11,630
252	* N.P.D. 59° 25′	1829	2	25 33,50	3,703	..	..	....	....
253	* N.P.D. 59° 25′	1829	2	27 44,24	3,699	..	..	....	....
254	* N.P.D. 58° 24′.	1829	2	29 37,91	3,721	..	..	....	....
255	* N.P.D. 57° 33′	1829	2	32 13,71	3,738	..	..	....	....
256	43 Cancri γ	1835	2	33 26,21	3,493	1835	2	67 55 34·87	12,438
257	* N.P.D. 57° 21′	1829	2	33 42,25	3,738	..	..	....	....
258	47 Cancri δ	1832	9	35 0,79	3,422	1834	8	71 13 37·71	12,546
259	* R.A. 8^h 37^m 0^s	..	..	....	..	1834	1	107 23 57·70	12,681
260	50 Cancri A^2	1830	3	37 36,44	3,301	..	..	....	....
261	* N.P.D. 58° 54′.	1829	2	38 22,06	3,689	..	..	....	....
262	* N.P.D. 74° 34′	1831	2	40 27,49	3,350	..	..	....	....
263	* N.P.D. 97° 44′	1829	1	41 23,04	2,930	..	..	....	....
264	* N.P.D. 59° 32′	1829	2	41 49,06	3,666	..	..	....	....
265	57 Cancri σ^2	1829	2	43 51,01	3,680	..	..	....	....
266	60 Cancri	1830	5	46 38,17	3,285	..	..	....	....
267	61 Cancri σ^3	1829	2	47 37,70	3,663	..	..	....	....
268	65 Cancri α	1829	4	49 10,97	3,287	..	..	....	....
269	A. S. C. 1098 Piazzi, viii. 230	1833	2	49 33,89	3,404	1833	2	71 12 34·97	+13,512
270	* N.P.D. 57° 14′.	1829	1	49 52,75	3,703	..	..	....	....
271	* N.P.D. 57° 7′	1829	2	50 57,07	3,703	..	..	....	....
272	* N.P.D. 60° 5′	1829	2	8 54 8,88	+3,625	..	..	....	....

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				h m s	s			° ′ ″	″
273	72 Cancri τ	1829	2	8 57 46,38	+3,627	..	..	....	....
274	76 Cancri κ	1829	2	58 31,93	3,259	..	..	....	....
275	77 Cancri ξ	1834	7	8 59 34,30	3,465	1834	6	67 16 20·06	+14,14
276	* N.P.D. 58° 21′	1829	2	9 0 21,09	3,650	..	..	....	....
277	81 Cancri π^1	1830	2	2 58,86	3,330	..	..	....	....
278	* N.P.D. 59° 22′	1829	2	4 11,04	3,618	..	..	....	....
279	82 Cancri π^2	1831	6	5 50,19	3,326	..	..	....	....
280	* N.P.D. 58° 1′	1829	2	7 11,05	3,639	..	..	....	....
281	24 Hydræ	1830	3	8 21,64	2,940	..	..	....	....
282	83 Cancri	1833	3	9 28,76	3,369	1833	2	71 34 45·28	14,746
283	* N.P.D. 58° 46′	1829	2	15 18,87	3,601	..	..	....	....
284	A. S. C. 1143	1831	5	16 6,75	3,341	..	..	....	....
285	30 Hydræ α	1832	135	19 14,02	2,948	1834	29	97 55 32·97	15,310
286	* N.P.D. 57° 7′	1829	2	20 1,75	3,606	..	..	....	....
287	* N.P.D. 71° 38′	1830	2	20 4,60	3,353	..	..	....	....
288	4 Leonis λ	1834	8	22 0,41	3,441	1834	7	66 17 13·46	15,466
289	5 Leonis ξ	1830	3	22 46,54	3,249	..	..	....	....
290	6 Leonis *h*	1830	3	22 50,54	3,224	..	..	....	....
291	* N.P.D. 58° 42′	1829	2	22 55,61	3,582	..	..	....	....
292	* N.P.D. 58° 6′	1829	1	25 23,30	3,588	..	..	....	....
293	7 Leonis	1831	6	26 34,78	3,292	..	..	....	....
294	Piazzi, ix. 124	1829	2	26 36,22	3,585	..	..	....	....
295	8 Leonis	1833	3	27 39,12	3,323	1833	1	72 48 8·05	15,775
296	Piazzi, ix. 145	1829	2	31 30,14	3,573	..	..	....	....
297	14 Leonis ο	1829	2	32 4,36	3,219	..	..	....	....
298	16 Leonis ψ	1831	2	34 27,95	3,277	..	..	....	....
299	17 Leonis ε	1829	2	36 11,14	3,426	..	..	....	....
300	29 Ursæ Majoris υ	..	..	....	..	1834	8	30 10 1·25	16,359
301	24 Leonis μ	1830	3	43 4,82	3,448	..	..	....	....
302	10 Sextantis	1830	3	47 24,75	3,193	..	..	....	....
303	* N.P.D. 58° 40′	1829	1	48 24,66	3,510	..	..	....	....
304	27 Leonis ν	1833	6	49 4,15	3,238	1834	2	76 44 52·27	+16,860
305	* N.P.D. 58° 36′	1829	1	51 33,44	3,502	..	..	....	....
306	* N.P.D. 82° 6′	1832	3	9 53 58,24	+3,165	..	..	....	....

No. of Star.	Name.	Mean Year for R.A.	Whole No. of Obs. in R.A.	Mean R.A. January 1, 1830.	Annual Precession.	Mean Year for N.P.D.	Whole No. of Obs. in N.P.D.	Mean N.P.D. January 1, 1830.	Annual Precession.
				h m s	s			° ′ ″	″
307	∗ N.P.D. 58° 6′ .	1829	1	9 55 47,57	+3,496	..	..	....	....
308	30 Leonis η	1834	3	58 3,22	3,283	1834	5	72 24 42·55	+17,271
309	∗ N.P.D. 83° 9′ .	1832	3	58 34,42	3,149	..	..	....	....
310	Regulus	1832	273	9 59 18,60	3,221	1834	88	77 12 18·83	17,327
311	A. S. C. 1215 } Piazzi, x. 6 }	1832	2	10 2 48,38	2,994	1835	1	96 28 55·22	17,478
312	22 Leonis Minoris .	1829	1	5 19,22	3,474	..	..	....	....
313	∗ R.A. $10^h 5^m 25^s$	..	..	....	..	1835	1	35 19 47·05	17,600
314	33 Ursæ Majoris λ .	1829	5	6 48,77	3,675	1833	3	46 14 24·07	17,647
315	37 Leonis	1833	2	7 32,75	3,232	1833	2	75 25 37·88	17,678
316	41 Leonis γ	1832	14	10 35,36	3,300	1834	10	69 18 6·84	17,802
317	42 Leonis	1833	2	12 41,12	3,239	1833	2	74 10 12·75	17,885
318	∗ R.A. $10^h 23^m 30^s$	..	..	....	..	1834	2	62 50 24·20	18,292
319	47 Leonis ρ	1833	15	23 51,23	3,166	1834	7	79 49 16·12	18,305
320	∗ N.P.D. 62° 52′.	1835	1	24 17,59	3,345	..	..	....	....
321	48 Leonis	1830	7	25 55,67	3,141	1833	3	82 10 26·81	18,378
322	A. S. C. 1266 } Piazzi, x. 126 }	..	..	....	..	1834	6	20 2 17·49	18,543
323	37 Sextantis......	1830	4	37 14,44	3,128	1833	3	82 44 0·10	18,750
324	∗ R.A. $10^h 38^m 20^s$	..	..	....	..	1835	1	31 50 29·00	18,789
325	53 Leonis *l*	1833	8	40 18,92	3,160	1835	3	78 33 26·85	18,843
326	∗ R.A. $10^h 44^m 10^s$	..	..	....	..	1835	1	26 8 50·71	18,962
327	56 Leonis	1831	3	47 11,62	3,120	1833	3	82 54 33·99	19,040
328	48 Ursæ Majoris β .	..	..	....	..	1834	26	32 42 29·63	19,155
329	58 Leonis *d*	1830	5	51 46,76	3,099	1833	3	85 28 18·77	19,161
330	59 Leonis *c*	1830	2	51 55,95	3,116	1833	4	82 59 12·27	19,165
331	50 Ursæ Majoris α .	1829	12	53 9,84	3,811	1834	125	27 19 59·66	19,196
332	∗ N.P.D. 60° 11′.	1829	1	53 55,31	3,286	..	..	....	....
333	63 Leonis χ	1833	10	56 14,61	3,121	1834	9	81 44 48·63	19,272
334	∗ N.P.D. 59° 2′ .	1829	1	10 59 48,41	3,277	..	..	....	....
335	∗ N.P.D. 58° 53′.	1829	1	11 3 5,10	3,268	..	..	....	....
336	68 Leonis δ	1829	8	5 3,42	3,193	1833	3	68 32 46·52	19,469
337	∗ N.P.D. 57° 29′.	1829	1	6 6,71	3,268	..	..	....	....
338	73 Leonis *n*	1835	2	6 57,89	3,146	1835	2	75 45 59·10	19,508
339	∗	1835	1	8 54,28	3,646	1835	1	26 53 28·65	19,550
340	53 Ursæ Majoris ξ .	1829	2	11 9 6,03	+3,255	1833	3	57 30 55·47	+19,549

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				h m s	s			° ′ ″	″
341	54 Ursæ Majoris ν .	1830	4	11 9 16,86	+3,266	1833	3	55 58 45·52	+19,554
342	∗ R.A. $11^h\ 10^m\ 5^s$	..	..	....	..	1833	1	56 14 50·64	19,574
343	76 Leonis	1829	3	10 11,47	3,081	1834	3	87 25 8·07	19,571
344	∗ N.P.D. 57° 21′	1829	1	11 34,57	3,248	..	..	....	....
345	77 Leonis σ	1834	2	12 21,98	3,071	1834	5	83 2 25·37	19,611
346	∗ N.P.D. 57° 16′	1829	1	13 43,57	3,241	..	..	....	....
347	78 Leonis ι	1832	7	15 3,57	3,121	1834	8	78 32 7·15	19,658
348	79 Leonis	1830	2	15 19,11	3,079	1833	3	87 39 37·95	19,663
349	∗ N.P.D. 57° 14′	1829	1	15 48,86	3,233	..	..	....	....
350	83 Leonis	1830	3	18 9,06	3,097	..	..	....	....
351	∗ N.P.D. 59° 14′	1829	1	18 39,76	3,211	..	..	....	....
352	84 Leonis τ	1830	6	19 11,69	3,084	1833	3	86 12 31·02	19,726
353	A. S. C. 1348 Piazzi, xi. 77	1831	3	19 12,52	3,065	1833	3	90 45 54·70	19,726
354	∗ R.A. $11^h\ 19^m\ 15^s$	..	..	....	..	1833	2	86 14 4·23	19,729
355	∗ N.P.D. 59° 6′ ..	1829	1	21 3,32	3,204	..	..	....	....
356	1 Draconis λ	1830	4	21 12,70	3,695	1834	4	19 43 53·62	19,756
357	∗ N.P.D. 59° 11′	1829	1	23 27,59	3,195	..	..	....	....
358	∗ N.P.D. 59° 39′	1829	1	26 4,35	3,184	..	..	....	....
359	91 Leonis υ	1830	7	28 14,80	3,068	1833	3	89 53 8·75	19,850
360	Piazzi, xi. 121 .	1829	1	29 7,22	3,184	..	..	....	....
361	∗ N.P.D. 57° 41′	1829	1	31 16,98	3,174	..	..	....	....
362	∗ N.P.D. 59° 28′	1829	1	35 13,50	3,154	..	..	....	....
363	∗ R.A. $11^h\ 36^m\ 30^s$	..	..	....	..	1833	1	80 47 8·54	19,938
364	2 Virginis ξ	1834	4	36 31,16	3,090	1833	3	80 47 50·66	19,937
365	3 Virginis ν	1832	14	37 7,24	3,086	1833	5	82 31 6·56	19,943
366	94 Leonis β	1832	215	40 22,98	3,100	1834	67	74 28 40·58	19,969
367	5 Virginis β	1832	9	41 50,45	3,073	1834	5	87 16 40·77	19,980
368	64 Ursæ Majoris γ	1829	4	44 51,07	3,192	1834	12	35 21 36·01	19,999
369	∗ N.P.D. 57° 48′	1829	1	45 2,68	3,123	..	..	....	....
370	∗ N.P.D. 60° 13′	1829	1	47 29,11	3,110	..	..	....	....
371	7 Virginis b	1833	4	51 14,46	3,072	1833	4	85 23 53·34	20,028
372	Piazzi, xi. 210 ..	1830	3	51 52,00	3,151	..	..	....	....
373	8 Virginis π	1834	5	52 9,60	3,074	1834	4	82 26 14·98	20,031
374	A. S. C. 1388 Piazzi, xi. 213	1830	2	11 52 20,26	+3,067	1833	3	90 49 6·07	+20,031

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				h m s	s			° ′ ″	″
375	* N.P.D. 58° 23′	1829	1	11 52 30,65	+3,095	..	..	....	....
376	* N.P.D. 59° 22′	1829	1	54 50,60	3,086	..	..	....	....
377	9 Virginis ο	1834	2	56 32,79	3,071	1834	2	80 19 21·15	+20,040
378	* N.P.D. 59° 33′	1829	1	58 1,70	3,075	..	..	....	....
379	1 Corvi α	1829	2	11 59 39,91	3,067	1833	3	113 46 46·99	20,043
380	* N.P.D. 59° 35′	1829	1	12 0 42,96	3,070	..	..	....	....
381	10 Virginis	1832	3	0 58,68	3,068	1835	1	87 8 50·72	20,042
382	69 Ursæ Majoris δ	1835	1	6 57,85	3,003	1834	99	32 1 19·86	20,033
383	13 Virginis	1830	2	9 57,56	3,068	1833	2	89 50 29·53	20,024
384	15 Virginis η	1832	12	11 12,73	3,068	1834	7	89 43 17·10	20,019
385	16 Virginis c	1833	2	11 43,03	3,063	1833	2	85 44 24·69	20,016
386	Piazzi, xii. 87..	1830	3	19 0,63	3,099	1834	2	105 41 23·54	19,976
387	A. S. C. 1432 Piazzi, xii. 91	1831	2	19 8,26	3,075	1833	3	93 40 24·77	19,973
388	7 Corvi δ	1829	2	21 4,72	3,102	..	..	....	....
389	A. S. C. 1443 Piazzi, xii. 111	1830	2	22 54,55	3,078	..	..	....	....
390	9 Corvi β	1831	4	25 28,42	3,129	1834	4	112 27 18·48	19,919
391	A. S. C. 1458 Piazzi, xii. 142	1832	3	29 42,39	3,060	..	..	....	....
392	A. S. C. 1459 Piazzi, xii. 143	1830	2	29 59,18	3,079	..	..	....	....
393	* N.P.D. 97° 47′	1834	4	32 30,57	3,094	..	..	....	....
394	29 Virginis γ	1833	13	33 3,05	3,070	1834	45	90 30 56·24	19,835
395	* R.A. $12^h 41^m 20^s$	..	..	....	..	1835	1	28 15 2·46	19,717
396	38 Virginis	1830	4	44 29,28	3,080	1833	3	92 37 39·69	19,666
397	42 Virginis	1833	6	46 34,82	3,027	1833	3	81 11 28·03	19,630
398	42 Virginis (1)....	..	..	....	..	1834	5	81 16 3·58	19,630
399	42 Virginis (2)....	1834	3	46 39,48	3,027	1834	5	81 14 16·49	19,630
400	43 Virginis δ	1833	15	47 2,65	3,047	1834	9	85 40 37·17	19,622
401	44 Virginis k	1830	5	50 54,50	3,083	..	..	....	....
402	47 Virginis ε	1830	3	53 43,06	3,003	..	..	....	....
403	48 Virginis	1834	3	12 55 9,22	3,083	..	..	....	....
404	51 Virginis θ	1831	4	13 1 9,32	3,097	..	..	....	....
405	46 Hydræ γ......	1829	2	9 41,85	3,232	..	..	....	....
406	Spica	1833	126	16 14,88	3,147	1834	95	100 16 15,60	18,944
407	79 Ursæ Majoris ζ^1	1835	1	13 17 3,89	+2,419	1834	54	34 11 4·47	18,921
408	79 Ursæ Majoris ζ^2	..	..	....	..	1834	17	34 11 16·32	+18,921

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				h m s	s			° ′ ″	″
409	80 Ursæ Majoris *g*	..	..	....	..	1834	3	34 7 27·59	+18,881
410	79 Virginis ζ	1834	2	13 26 2,18	+3,066	1834	4	89 43 25·77	18,647
411	82 Virginis *m*	1832	9	32 41,92	3,140	1833	3	97 50 31·37	18,425
412	A. S. C. 1559 Piazzi, xiii. 174	1832	4	35 4,08	3,112	1833	2	94 38 20·77	18,343
413	A. S. C. 1561 Piazzi, xiii. 179	1829	2	36 2,82	3,133	1833	3	96 46 39·47	18,308
414	88 Virginis *n*	1829	3	39 24,86	3,127	1833	2	95 59 7·21	18,186
415	85 Ursæ Majoris η	..	..	....	..	1834	32	39 50 7,39	18,134
416	A. S. C. 1585 Piazzi, xiii. 238	1829	3	46 3,80	3,144	1833	3	97 13 6·39	17,934
417	8 Boötis η	1831	5	46 35,50	2,859	1834	12	70 44 49·55	17,914
418	A. S. C. 1594 Piazzi, xiii. 270	1829	3	51 7,59	3,148	1834	3	97 19 48·65	17,732
419	A. S. C. 1600 Piazzi, xiii. 286	1829	3	55 15,56	3,230	..	..	....	....
420	94 Virginis	1833	4	57 18,27	3,161	..	..	....	....
421	11 Draconis α	1831	7	59 47,19	1,625	1834	63	24 48 34·15	17,367
422	96 Virginis	1828	2	13 59 57,84	3,180	1833	2	99 31 29·93	17,359
423	98 Virginis κ	1831	12	14 3 50,27	3,183	1834	9	99 28 40·70	17,187
424	15 Boötis	1830	2	6 31,53	2,933	..	..	....	....
425	99 Virginis ι	1832	7	7 6,56	3,132	1834	9	95 11 8·34	17,038
426	Arcturus	1832	399	7 54,63	2,809	1834	88	69 55 43·59	16,998
427	100 Virginis λ	1830	8	9 55,39	3,228	1834	5	102 35 1·89	16,907
428	2 Libræ	1831	6	14 17,54	3,211	1833	3	100 55 58·04	16,700
429	104 Virginis	1830	5	18 29;51	3,139	1833	3	95 20 55·31	16,494
430	23 Boötis θ	1829	3	19 24,83	2,068	..	..	....	....
431	106 Virginis	1829	2	19 44,37	3,150	..	..	....	....
432	27 Boötis γ	1829	5	25 13,87	2,426	1833	3	50 56 38·71	16,151
433	A. S. C. 1651 Piazzi, xiv. 127	1831	6	27 57,74	3,233	..	..	....	....
434	107 Virginis μ	1829	3	34 6,77	3,140	..	..	....	....
435	* N.P.D. 64° 49′	1832	5	34 11,07	2,676	..	..	....	....
436	* R.A. $14^h 34^m 0^s$	..	..	....	..	1834	4	64 43 48·16	15,670
437	* R.A. $14^h 34^m 40^s$	..	..	....	..	1834	2	64 44 24·75	15,634
438	36 Boötis ε (2d star)	1831	105	37 33,78	2,621	1834	40	62 12 16·41	15,490
439	*	1835	2	39 10,41	2,664	1834	2	64 42 4·55	15,393
440	7 Libræ μ	1833	2	40 0,94	3,273	1833	2	103 26 6·42	15,353
441	* N.P.D. 64° 49′	1831	2	40 23,76	2,663	..	..	....	....
442	*	1831	6	14 40 51,13	+2,661	1834	6	64 42 11·14	+15,301

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				h m s	s			° ′ ″	″
443	* N.P.D. 64° 49′	1832	2	14 41 14,80	+2,662	..	..	....	....
444	8 Libræ	..	..	....	..	1834	7	105 17 4·77	+15,280
445	9 Libræ α	1832	97	41 29,30	3,305	1834	12	105 19 47·15	15,270
446	* N.P.D. 64° 12′	1830	2	41 44,18	2,649	..	..	....	....
447	15 Libræ ξ^2	1832	9	47 33,35	3,237	1834	4	100 43 5·61	14,921
448	Piazzi, xiv. 229	1830	2	50 1,84	3,136	..	..	....	....
449	7 Ursæ Minoris β	..	..	....	..	1834	107	15 8 59·39	14,701
450	19 Libræ δ	1828	2	51 54,07	3,193	..	..	....	....
451	41 Boötis ω	1830	2	54 39,58	2,624	..	..	....	....
452	Piazzi, xiv. 260	1834	4	54 54,05	0,940	1834	4	23 23 19·34	14,481
453	21 Libræ ν^1	1830	6	14 57 9,56	3,328	1833	2	105 35 30·13	14,347
454	24 Libræ ι^1	1829	3	15 2 32,83	3,400	..	..	....	....
455	Piazzi, xv. 13..	1830	2	4 31,45	2,660	..	..	....	....
456	* N.P.D. 108° 17′	1829	3	4 41,31	3,386	..	..	....	....
457	*	1835	2	5 14,88	3,089	1834	2	91 14 40·00	13,834
458	Piazzi, xv. 18..	1830	3	6 0,86	2,644	..	..	....	....
459	27 Libræ β	1831	7	7 52,17	3,218	1834	3	98 44 58·42	13,678
460	* N.P.D. 67° 0′..	1830	2	7 57,42	2,653	..	..	....	....
461	* N.P.D. 97° 10′	1831	3	8 8,82	3,191	..	..	....	....
462	* N.P.D. 56° 37′	1829	1	8 12,90	2,424	..	..	....	....
463	49 Boötis δ	1829	4	8 39,08	2,408	..	..	....	....
464	* N.P.D. 56° 37′	1831	5	9 27,61	2,420	..	..	....	....
465	* N.P.D. 67° 6′..	1831	3	9 57,40	2,652	..	..	....	....
466	29 Libræ o^1	1831	2	11 32,06	3,332	..	..	....	....
467	* R.A. 15^h 13^m 20^s	..	..	....	..	1833	1	91 58 5·30	13,313
468	30 Libræ o^2	1831	2	13 33,62	3,327	..	..	....	....
469	* R.A. 15^h 14^m 10^s	..	..	....	..	1833	1	92 9 13·70	13,257
470	31 Libræ ε	1829	2	14 59,74	3,240	..	..	....	....
471	* N.P.D. 68° 55′	1830	2	15 0,03	2,681	..	..	....	....
472	51 Boötis μ	1829	4	18 4,18	2,275	..	..	....	....
473	32 Libræ ζ^1	1831	3	18 40,93	3,362	1834	3	106 7 0·87	12,971
474	35 Libræ ζ^4	1829	2	23 19,65	3,370	..	..	....	....
475	37 Libræ	1830	4	24 53,81	3,242	..	..	....	....
476	38 Libræ γ	1832	16	15 26 1,67	+3,333	1834	6	104 12 56·79	+12,475

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477	5 Cor. Borealis α .	1831	69	$15^{h}\ 27^{m}\ 29^{s},59$	$+2^{s},526$	1834	74	$62^{\circ}\ 42'\ 29''\cdot31$	$+12'',375$
478	Piazzi, xv. 146 .	1829	2	31 52,84	2,745	..	..	....	....
479	A. S. C. 1788 ..	1831	5	33 53,71	3,346	..	..	....	....
480	44 Libræ η	1831	12	34 31,31	3,359	1834	7	105 7 26·42	11,885
481	24 Serpentis α	1831	77	35 54,06	2,936	1835	33	83 2 0·58	11,788
482	28 Serpentis β	1829	3	38 20,74	2,757	..	..	....	....
483	37 Serpentis ε	1829	4	42 21,02	2,972	..	..	....	....
484	46 Libræ θ	1832	7	44 9,51	3,390	1834	4	106 13 22·54	11,196
485	41 Serpentis γ	1829	3	48 36,40	2,741	..	..	....	....
486	48 Libræ	1828	2	48 40,90	3,343	..	..	....	....
487	7 Scorpii δ	1828	3	50 17,74	3,527	..	..	....	....
488	49 Libræ	1832	3	50 47,92	3,392	..	..	....	....
489	51 Libræ	1828	2	55 1,79	3,288	..	..	....	....
490	8 Scorpii β^1	1829	12	55 33,86	3,469	1834	22	109 19 57·27	10,355
491	8 Scorpii β^2	..	..	....	..	1835	5	109 19 42·13	10,355
492	10 Scorpii ω^2	1834	2	57 26,87	3,496	1834	3	110 24 6·06	10,214
493	11 Scorpii	1828	2	15 58 10,58	3,319	..	..	....	....
494	14 Scorpii ν	1832	4	16 2 7,69	3,469	..	..	....	....
495	15 Scorpii ψ......	1828	2	2 42,99	3,265	..	..	....	....
496	1 Ophiuchi δ	1832	99	5 26,58	3,135	1835	2	93 15 0·59	9,607
497	A. S. C. 1865 ..	1831	4	7 59,29	3,141	..	..	....	....
498	2 Ophiuchi ε	1829	3	9 20,04	3,156	..	..	....	....
499	20 Herculis γ	1829	2	14 25,42	2,643	..	..	....	....
500	7 Ophiuchi χ	..	..	....	..	1834	3	108 3 45·15	8,694
501	3 Ophiuchi υ	1828	2	18 36,94	3,237	..	..	....	....
502	Antares	1832	143	18 59,86	3,659	1834	25	116 2 46·81	8,550
503	A. S. C. 1890 } Piazzi, xvi. 93 }	1829	2	20 57,65	3,664	.	..	....	....
504	8 Ophiuchi φ	1829	7	21 25,09	3,422	..	..	....	....
505	9 Ophiuchi ω	1835	4	22 4,19	3,537	1835	3	111 5 39·39	8,306
506	* N.P.D. 96° 39′.	1831	3	22 40,71	3,210	..	..	....	....
507	27 Herculis β	1829	2	22 54,96	2,579	..	..	....	....
508	13 Ophiuchi ζ	1829	7	27 48,24	3,290	..	..	....	....
509	* N.P.D. 77° 18′.	1831	4	28 53,35	2,790	..	..	....	....
510	Piazzi, xvi. 142 .	1834	3	16 31 27,39	+3,464	1834	4	107 43 10·41	+ 7,532

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				h m s	s			° ′ ″	″
511	24 Scorpii	1829	2	16 31 44,93	+3,456	..	..	....	....
512	40 Herculis ζ	1829	3	34 52,77	2,293	..	..	....	....
513	20 Ophiuchi......	1828	2	40 26,20	3,300	..	..	....	....
514	23 Ophiuchi.......	1828	2	45 30,93	3,198	..	..	....	....
515	29 Ophiuchi......	1834	3	51 55,00	3,499	1834	5	108 37 37·00	+5,866
516	A. S. C. 1951 Piazzi, xvi. 271	1828	2	16 55 8,61	3,314	..	..	....	....
517	35 Ophiuchi η	1830	8	17 0 38,12	3,426	1834	2	105 30 20·06	5,134
518	36 Ophiuchi A^1 ...	1832	5	4 54,35	3,711	1834	3	116 20 37·56	4,772
519	36 Ophiuchi A^2 ...	..	..	....	..	1834	3	116 20 34·47	4,772
520	30 Scorpii	1831	2	5 46,73	3,710	..	..	....	....
521	64 Herculis α	1835	42	6 53,95	2,729	1835	15	75 24 33·52	4,603
522	31 Scorpii	1831	2	7 6,37	3,715	..	..	....	....
523	40 Ophiuchi ξ	1832	5	10 49,61	3,567	1834	2	110 55 19·17	4,268
524	53 Serpentis ν	1828	2	11 16,26	3,362	..	..	....	....
525	A. S. C. 1998 Piazzi, xvii. 99	1828	2	17 36,91	3,181	..	..	....	....
526	23 Draconis β	..	..	....	..	1833	3	37 34 11·41	2,912
527	55 Ophiuchi α	1832	239	27 2,81	2,770	1834	52	77 18 35·36	2,872
528	55 Serpentis ξ	1829	2	27 51,36	3,430	..	..	....	....
529	57 Ophiuchi μ....	1828	2	28 36,52	3,254	..	..	....	....
530	56 Serpentis ο	1828	2	31 51,90	3,369	..	..	....	....
531	58 Ophiuchi......	1833	5	33 14,92	3,593	1834	2	111 35 29·07	2,334
532	28 Draconis ω	..	..	....	..	1835	2	21 9 50·87	1,926
533	A. S. C. 2050 Piazzi, xvii. 281	1828	2	46 32,58	3,445	..	..	....	....
534	4 Sagittarii	1835	8	49 24,97	3,656	1834	4	113 47 27·86	0,925
535	64 Ophiuchi ν	1828	2	49 40,25	3,297	..	..	....	....
536	Piazzi, xvii. 308	1834	2	51 6,67	3,503	1834	1	108 3 24·67	0,758
537	A. S. C. 2069 Piazzi, xvii. 323	1830	3	52 28,88	3,573	..	..	....	....
538	33 Draconis γ	..	..	....	..	1834	25	38 29 15·48	0,642
539	A. S. C. 2085 Piazzi, xvii. 359	1835	1	17 57 19,37	3,792	1835	1	118 27 57·98	+0,235
540	13 Sagittarii μ....	1832	12	18 3 35,93	3,583	1834	8	111 5 38·65	−0,314
541	16 Sagittarii	1834	4	5 6,10	3,566	1834	5	110 25 46·09	0,445
542	A. S. C. 2117 ..	1830	2	15 3,36	2,497	..	..	....	....
543	22 Sagittarii λ	1834	3	18 17 28,69	+3,704	1834	3	115 30 21·11	1,527
544	* R.A. 18^h 18^m 5^s	..	..	....	..	1834	21	38 32 26·61	−1,600

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				h m s	s			° ′ ″	″
545	A. S. C. 2125 . .	1831	6	18 19 30,48	+ 3,416	. .	. .	. . . .	. . . .
546	A. S. C. 2127 . .	1831	4	20 5,17	3,417	. .	. .	. . . .	. . . .
547	23 Sagittarii	1834	3	20 10,02	3,522	1834	5	113 21 15·80	−1,782
548	A. S. C. 2132 } Piazzi, xviii. 92 }	1829	2	21 28,60	3,513	. .	. .	. . . .	. . . .
549	24 Sagittarii.	1834	4	23 30,40	+ 3,664	1834	5	114 8 58·11	2,052
550	23 Ursæ Minoris δ .	1832	226	27 7,27	−19,168	1834	341	3 24 52·69	2,357
551	3 Lyræ α	1829	27	31 11,02	+ 2,010	1834	75	51 22 9·44	2,718
552	24 Ursæ Minoris . .	1830	4	33 31,72	−21,813	1834	7	3 2 28·12	2,919
553	* R.A. $18^h 34^m 10^s$	. .	. .	. . . .	. .	1833	1	115 57 12·68	2,990
554	27 Sagittarii φ	1835	5	35 2,07	+ 3,745	1834	2	117 9 20·52	3,052
555	* N.P.D. 110° 11′	1830	4	42 26,04	3,551	. .	. .	. . . .	. . . .
556	10 Lyræ β^1	1829	23	43 48,22	2,211	1834	30	56 49 46·08	3,807
557	10 Lyræ β^2	. .	. .	. . . .	. .	1834	6	56 50 24·71	3,807
558	* N.P.D. 108° 6′ .	1829	1	44 33,96	3,497	. .	. .	. . . .	. . . .
559	34 Sagittarii σ	1835	2	44 43,50	3,722	1835	1	116 29 56·99	3,886
560	* N.P.D. 105° 46′	1834	2	44 58,38	3,438	. .	. .	. . . .	. . . .
561	* R.A. $18^h 45^m 0^s$	. .	. .	. . . .	. .	1834	2	105 48 23·78	3,925
562	37 Sagittarii ξ^2. . . .	1832	4	47 35,09	3,578	. .	. .	. . . .	. . . .
563	39 Sagittarii ο	1833	4	54 29,54	3,592	1834	4	111 58 54·10	4,721
564	41 Sagittarii π	1834	6	18 59 38,99	3,571	1834	6	111 17 7·73	5,158
565	*	1831	2	19 1 20,32	3,442	1834	2	106 11 23·61	5,315
566	A. S. C. 2225 } Piazzi, xix. 7 }	1830	5	2 45,19	3,701	1834	2	116 11 1·25	5,419
567	Piazzi, xix. 32 .	1834	3	7 8,76	3,568	1834	5	111 21 52·38	5,809
568	43 Sagittarii *d*	1830	10	7 41,12	3,514	1833	5	109 14 48·81	5.833
569	44 Sagittarii ϱ^1	1830	5	11 48,54	3,485	1834	2	108 9 31·60	6,178
570	45 Sagittarii ϱ^2	1830	4	11 55,64	3,496	1834	2	108 36 55·57	6,189
571	* R.A. $19^h 12^m 10^s$	. .	. .	. . . .	. .	1834	3	96 43 29·34	6,222
572	57 Draconis δ	1829	5	12 29,75	0,023	1834	49	22 38 13·67	6,234
573	*	1834	3	12 36,52	3,552	1834	4	110 57 8·15	6,262
574	30 Aquilæ δ	. .	. .	. . . .	. .	1835	2	87 13 2·41	6,601
575	*	1831	4	17 46,44	3,495	1834	2	108 41 1·78	6,676
576	A. S. C. 2270 . .	1831	4	18 11,52	3,494	1834	2	108 41 41·63	6,706
577	A. S. C. 2276 } Piazzi, xix. 138 }	1832	6	20 48,33	3,566	1833	2	111 39 25·71	6,921
578	52 Sagittarii h^2 . . .	1834	4	19 26 21,36	+ 3,654	1834	2	115 14 59·68	−7,374

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				h m s	s			° ′ ″	″
579	*	1834	3	19 27 25,25	+2,625	1834	2	70 18 38·26	− 7,508
580	* N.P.D. 70° 22′	1831	1	27 57,46	2,626	..	..	....	..
581	*	1832	3	30 12,75	3,411	1834	2	105 32 50·27	7,703
582	* N.P.D. 71° 43′	1834	2	30 36,07	2,661	..	..	....	..
583	54 Sagit. e^1 (1^{st} star)	1831	3	30 58,75	3,437	1834	2	106 40 31·58	7,749
584	54 Sagit. e^1 (2^{nd} star)	..	..	....	..	1834	2	106 39 57·81	7,749
585	*	1832	2	31 25,80	2,661	1834	2	71 41 23·13	7,785
586	*	1833	3	31 41,48	2,661	1834	2	71 41 55·41	7,820
587	55 Sagittarii e^2 ...	1829	8	32 47,51	3,432	1834	2	106 30 48·33	7,895
588	56 Sagittarii f	1833	2	36 26,23	3,516	1833	2	110 9 43·11	8,187
589	50 Aquilæ γ	..	..	....	..	1834	42	79 47 41·16	8,326
590	*	1831	3	41 41,71	2,643	1834	2	70 37 29·90	8,618
591	57 Sagittarii	1831	4	42 18,76	3,494	1834	2	109 28 10·73	8,653
592	53 Aquilæ α	1833	313	42 29,31	2,890	1834	119	81 34 26·25	8,667
593	*	1831	2	43 23,51 21,17	2,644	1834	1	70 36 24·68	8,759
594	*	1831	3	44 18,22	2,645	1834	2	70 37 36·02	8,822
595	*	1831	2	44 42,38	2,645	1834	2	70 34 38·90	8,853
596	59 Sagittarii b	1835	2	46 30,36	3,693	..	..	....	..
597	60 Aquilæ β	1830	58	46 57,72	2,943	1834	49	84 0 41·06	9,018
598	61 Sagittarii g	1829	5	48 18,34	3,408	1834	2	105 56 6·49	9,123
599	A. S. C. 2349 Piazzi, xix. 351	1833	2	51 17,07	3,574	1833	2	113 11 47·73	9,354
600	62 Sagittarii c	1834	7	52 11,64	3,700	1834	4	118 10 28·32	9,424
601	*	1828	2	58 27,91	3,589	1834	2	114 4 14·36	9,907
602	Piazzi, xix. 410	1828	3	19 59 36,67	3,514	1834	2	111 4 46·63	9,990
603	4 Capricorni	1833	2	20 8 1,50	3,533	1833	2	112 19 38·94	10,623
604	5 Capricorni α^1 ..	1830	7	8 13,23	3,330	1835	16	103 1 35·48	10,637
605	6 Capricorni α^2 ..	1832	254	8 36,96	3,331	1835	26	103 3 53·00	10,667
606	7 Capricorni σ ...	1833	2	9 34,71	3,471	1833	3	109 38 30·27	10,738
607	A. S. C. 2395 Piazzi, xx. 79	..	..	....	..	1834	2	105 18 49·83	10,858
608	8 Capricorni ν ...	1829	3	11 13,67	3,333	1834	3	103 17 14·68	10,859
609	9 Capricorni β ...	1830	6	11 27,12	3,375	1834	2	105 18 40·51	10,876
610	10 Capricorni π ...	1833	3	17 34,96	3,443	1834	3	108 45 42·62	11,322
611	A. S. C. 2406 Piazzi, xx. 146	1833	2	19 32,28	3,532	1833	3	112 56 51·97	11,463
612	A. S. C. 2418 Piazzi, xx. 194	1830	2	20 25 54,51	+3,399	1834	2	107 6 10·41	−11,915

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				h m s	s			° ′ ″	″
613	13 Capricorni τ^1 ..	1830	2	20 27 48,67	+ 3,369	1834	2	105 43 47·04	−12,049
614	Bode λ Ursæ Min. Piazzi, xx. 424	1832	14	29 42,63	−47,404	1835	17	1 12 14·37	12,180
615	15 Capricorni υ. ..	1832	3	30 21,72	+ 3,427	1834	2	108 43 49·63	12,226
616	A. S. C. 2437 Piazzi, xx. 240	1830	6	30 58,76	3,385	1834	2	106 43 19·90	12,269
617	50 Cygni α	1829	39	35 38,31	2,040	1834	148	45 19 24·81	12,588
618	16 Capricorni ψ ..	1834	5	36 0,97	3,572	1834	2	115 52 29·41	12,615
619	A. S. C. 2457 Piazzi, xx. 310	1830	5	39 41,22	3,414	1834	2	108 39 23·19	12,862
620	A. S. C. 2468 Piazzi, xx. 339	1834	2	43 2,23	3,527	1834	2	114 24 48·35	13,085
621	19 Capricorni	1832	6	45 10,87	3,405	1833	5	108 33 40·57	13,227
622	*	1831	1	46 11,94	3,407	1834	2	108 42 46·65	13,297
623	* R.A. 20h 46m 10s	..	..	......	..	1834	1	108 46 8·81	13,303
624	A. S. C. 2482 Piazzi, xx. 386	1831	2	48 9,04	3,365	1834	3	106 40 47·76	13,421
625	21 Capricorni	1831	2	51 17,10	3,390	1834	2	108 11 18·29	13,623
626	A. S. C. 2493 ..	1830	2	51 43,85	3,605	1834	3	33 45 52·42	13,652
627	22 Capricorni η ...	1834	6	54 43,14	3,430	1834	8	110 31 15·23	13,842
628	23 Capricorni θ....	1831	3	56 22,89	3,378	1834	2	107 54 8·38	13,946
629	25 Capricorni χ ..	1834	4	20 58 48,59	3,449	1834	4	111 52 13·71	14,099
630	13 Aquarii ν......	1829	4	21 0 19,52	3,270	1834	2	102 3 16·13	14,192
631	3 Piscis Australis .	1831	2	3 11,56	3,569	1834	2	118 18 25·01	14,369
632	* R.A. 21h 5m 50s	..	..	......	..	1834	2	105 49 25·92	14,535
633	28 Capricorni φ ..	1834	5	5 56,65	3,428	1834	5	111 21 5·29	14,535
634	29 Capricorni	1830	2	6 19,60	3,329	1834	3	105 52 20·60	14,558
635	32 Capricorni ι ...	1833	4	12 46,38	3,350	1833	3	107 33 11·00	14,940
636	5 Cephei α	1829	14	14 30,96	1,416	1834	194	28 7 57·43	15,040
637	19 Aquarii	1828	3	16 4,52	3,230	1834	3	100 28 3·39	15,130
638	34 Capricorni ζ ..	1835	9	16 56,82	3,441	1835	5	113 8 31·03	15,180
639	Piazzi xxi. 121 .	1831	3	17 33,17	3,539	1834	2	118 27 25·21	15,221
640	A. S. C. 2549 Piazzi, xxi. 154	1832	2	21 21,15	3,297	1834	2	105 1 50·10	15,429
641	22 Aquarii β......	1833	214	22 36,30	3,162	1835	52	96 18 51·27	15,499
642	Piazzi, xxi. 171	1834	4	24 16,09	3,323	1834	5	106 56 37·84	15,570
643	* R.A. 21h 25m 50s	..	..	......	..	1834	4	107 0 57·31	15,690
644	8 Cephei β	1829	8	26 26,01	0,811	1834	64	20 11 3·51	15,708
645	39 Capricorni ε ...	1834	9	27 33,02	3,372	1834	7	110 13 21·38	15,770
646	23 Aquarii ξ......	1829	5	21 28 41,76	+ 3,192	1834	3	98 36 43·23	−15,831

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				h m s	s			° ′ ″	″
647	* R.A. $21^h 28^m 50^s$	..	..	......	....	1833	2	105 40 15·46	−15,852
648	40 Capricorni γ ...	1832	2	21 30 39,86	+3,322	1834	3	107 25 31·38	15,936
649	43 Capricorni κ ...	1834	2	33 9,35	3,353	1834	2	109 38 9·79	16,067
650	44 Capricorni	..	..	......	....	1833	2	105 10 20·76	16,100
651	47 Capricorni c^2 ..	1828	2	37 11,74	3,206	1834	3	100 3 20·29	16,276
652	49 Capricorni δ ...	1833	9	37 38,98	3,304	1834	8	106 53 39·66	16,299
653	51 Capricorni μ ...	1833	2	44 1,13	3,259	1834	6	104 20 51·27	16,617
654	* R.A. $21^h 47^m 50^s$	..	..	......	....	1834	3	104 9 13·05	16,819
655	29 Aquarii	1833	2	53 7,77	3,293	1833	2	107 46 46·31	17,050
656	30 Aquarii	1828	2	54 19,65	3,158	1834	2	97 20 23·97	17,104
657	34 Aquarii α	1832	151	57 3,04	3,082	1834	70	91 8 32·09	17,227
658	33 Aquarii ι	1833	4	57 14,89	3,247	1834	2	104 41 24·95	17,236
659	35 Aquarii	1835	2	59 38,87	3,303	1835	2	109 20 50·29	17,342
660	25 Pegasi	1828	2	21 59 51,45	2,813	1834	2	69 7 16·74	17,351
661	37 Aquarii e^1	1830	3	22 1 27,17	3,204	1834	2	101 39 12·06	17,420
662	28 Pegasi	1828	2	2 28,47	2,828	1834	2	69 51 14·91	17,464
663	*	1828	2	3 36,95	3,168	1834	3	98 48 15·44	17,509
664	* R.A. $22^h 3^m 40^s$	..	..	......	....	1834	3	98 50 51·84	17,526
665	40 Aquarii	1831	2	4 20,58	3,214	1834	2	102 45 45·39	17,544
666	*	1829	2	5 41,15	2,111	1834	2	33 43 58·09	17,579
667	42 Aquarii	1830	3	7 41,13	3,221	1834	2	103 40 31·77	17,683
668	43 Aquarii θ	1828	11	7 51,54	3,163	1834	3	98 37 34·25	17,691
669	A. S. C. 2656 } Piazzi xxii. 46 }	1831	4	7 53,70	3,177	1834	2	99 53 0·77	17,692
670	23 Cephei ε	1829	4	8 47,41	2,137	1835	17	33 48 5·77	17,728
671	45 Aquarii	1832	5	9 52,84	3,224	1834	3	104 9 8·26	17,773
672	50 Aquarii	1831	3	15 20,15	3,219	1834	2	104 23 14·54	17,989
673	56 Aquarii	1832	4	21 10,21	3,222	1833	2	105 27 5·89	18,208
674	57 Aquarii σ......	1832	10	21 38,67	3,182	1834	7	101 32 40·57	18,225
675	27 Cephei δ^1......	..	..	......	....	1834	2	32 27 50·78	18,269
676	27 Cephei δ^2......	1829	4	22 52,52	2,204	1834	2	32 27 11·01	18,269
677	39 Pegasi	1828	2	24 23,00	2,878	1834	2	70 38 36·21	18,323
678	A. S. C. 2694 } Piazzi xxii. 142 }	1831	2	25 8,88	3,167	1834	2	100 28 55·27	18,350
679	63 Aquarii κ......	1828	7	28 56,98	3,114	1834	2	95 6 7·56	18,482
680	64 Aquarii	1830	5	22 30 18,89	+3,166	1834	2	100 54 32·40	−18,528

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681	67 Aquarii	1829	4	$22^{h}\ 34^{m}\ 21^{s},35$	$+3^{s},135$	1834	2	97° 51′ 0″·20	−18″,659
682	Piazzi, xxii. 206	1830	4	35 42,20	3,140	1834	2	98 30 23·70	18,701
683	47 Pegasi λ	1828	2	38 21,15	2,873	1834	2	67 19 35·72	18,784
684	70 Aquarii	1832	8	39 33,07	3,161	1833	2	101 27 4·39	18,821
685	71 Aquarii τ^2	1834	6	40 34,98	3,185	1834	5	104 29 13·95	18,851
686	48 Pegasi μ	1828	2	41 48,47	2,872	1834	2	66 17 37·96	18,887
687	73 Aquarii λ	1829	10	43 44,52	3,133	1834	2	98 28 54·05	18,943
688	74 Aquarii	1832	4	44 31,29	3,164	1833	2	102 31 5·51	18,965
689	A. S. C. 2734 ..	1829	2	44 45,57	2,297	1834	2	29 12 19·30	18,971
690	76 Aquarii δ	1834	6	45 37,18	3,196	1834	6	106 43 20·51	18,996
691	A. S. C. 2739 Piazzi, xxii. 250	1829	2	46 21,94	3,112	1834	2	95 53 27·59	19,017
692	Fomalhaut	1828	2	48 14,30	3,311	1833	21	120 31 13·92	19,068
693	Piazzi, xxii. 254	1829	2	48 28,84	3,109	1834	2	95 42 58·25	19,075
694	3 Piscium	1829	4	51 54,82	3,073	1834	2	90 43 29·21	19,165
695	A. S. C. 2749 ..	1830	4	53 4,16	3,050	1834	2	87 22 39·61	19,194
696	83 Aquarii h^1	1833	2	56 17,74	3,124	1833	3	98 36 33·16	19,273
697	54 Pegasi α	1832	158	56 17,90	2,975	1834	42	75 42 27·53	19,273
698	A. S. C. 2757 ..	1830	3	22 57 5,97	2,243	1834	2	23 42 21·24	19,291
699	90 Aquarii ϕ	1828	2	23 5 31,04	3,106	1834	2	96 57 50·06	19,479
700	91 Aquarii ψ^1	1833	6	6 58,92	3,122	1834	5	100 0 43·84	19,509
701	92 Aquarii χ	1834	3	8 2,01	3,114	1834	2	98 39 6·31	19,530
702	95 Aquarii ψ^3	1833	12	10 6,84	3,122	1834	9	100 32 18·30	19,570
703	96 Aquarii	1832	4	10 35,05	3,098	1834	4	96 3 6·16	19,578
704	8 Piscium κ	1828	2	18 13,08	3,067	1834	2	89 40 25·81	19,710
705	A. S. C. 2802 ..	1830	3	20 8,39	2,452	1834	2	20 34 28·87	19,740
706	11 Piscium	1828	2	20 43,30	3,079	1834	2	92 43 32·19	19,749
707	A. S. C. 2814 Piazzi, xxiii. 126	1832	2	26 45,82	3,097	1834	2	98 24 14·57	19,832
708	35 Cephei γ	1829	6	32 26,40	2,390	1834	10	13 18 57·12	19,898
709	20 Andromedæ ψ .	1829	4	37 38,34	2,936	1834	2	44 31 22·35	19,947
710	*	1833	3	38 53,82	3,083	1834	2	96 46 9·48	19,959
711	* R.A. $23^{h}\ 39^{m}\ 0^{s}$	..	..	....	..	1834	1	93 41 30·09	19,960
712	20 Piscium	1834	12	39 12,23	3,076	1834	9	93 42 21·26	19,960
713	A. S. C. 2842 Piazzi, xxiii. 190	1832	2	39 48,16	3,083	1834	3	97 19 26·02	19,965
714	*	1833	2	23 39 58,62	+3,081	1834	2	96 21 46·69	−19,969

No. of Star.	Name.	Mean Year for R.A.	Whole No. of Obs. in R.A.	Mean R.A. January 1, 1830.	Annual Precession.	Mean Year for N.P.D.	Whole No. of Obs. in N.P.D.	Mean N.P.D. January 1, 1830.	Annual Precession.
				h m s	s			° ′ ″	″
715	24 Piscium	1831	2	23 44 11,64	+3,075	1834	2	94 5 54·47	—19,995
716	25 Piscium	1828	2	44 22,31	3,066	1834	2	88 51 14·42	19,996
717	A. S. C. 2859 Piazzi, xxiii. 227	1831	3	46 4,67	3,069	1834	2	90 50 8·67	20,006
718	*	1833	2	46 24,60	3,076	1833	3	95 36 49·19	20,011
719	27 Piscium	1833	3	49 58,18	3,073	1834	4	94 29 56·40	20,023
720	A. S. C. 2868	1830	3	52 59,26	2,996	1834	3	29 43 25·31	20,033
721	29 Piscium	1833	2	53 6,58	3,071	..	..	......	....
722	30 Piscium	1834	9	53 14,48	3,073	1834	3	96 57 31·47	20,034
723	A. S. C. 2876 Piazzi, xxiii. 270	1831	3	56 20,98	3,069	1834	2	91 26 48·86	20,040
724	33 Piscium	1834	9	56 38,03	3,070	1834	4	96 39 29·11	20,040
725	*	1829	2	57 48,32	3,061	1834	6	61 55 0·38	20,042
726	21 Andromedæ α .	1832	155	23 59 37,01	+3,067	1834	65	61 50 54·22	—20,043

THE END.

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University of Cambridge.
Observatory.
Astronomical observations.